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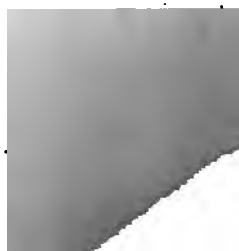
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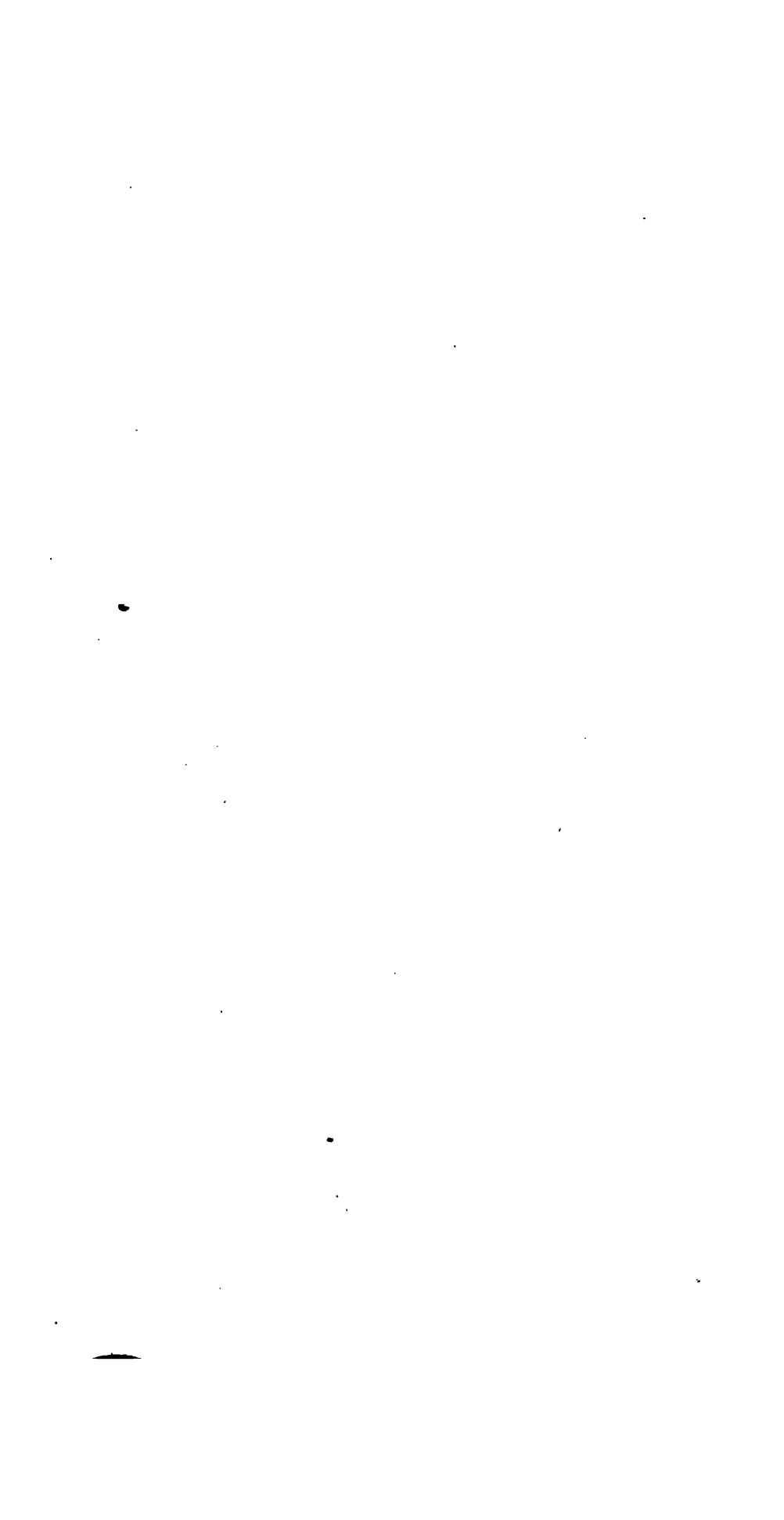




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S. H-1828

A
TREATISE
ON
DIET AND REGIMEN,

WHEREIN ARE ESTABLISHED ON PRACTICAL GROUNDS,

RULES,

FOR THE PREVENTION, AND CURE OF DISEASES INCIDENT TO
A DISORDERED STATE OF THE DIGESTIVE ORGANS,
AND OF THE NERVOUS SYSTEM.

TO WHICH ARE ADDED,

A POSOLOGICAL TABLE, OR MEDICINE CHEST DIRECTORY—A TABLE
INTENDED TO SHEW THE DOSES OF MEDICINES PROPER FOR
PERSONS OF DIFFERENT AGES:—SELECT PRESCRIPTIONS
AND A GLOSSARY, OR EXPLANATION OF TERMS.



BY

JAMES RYMER,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON.

"Rationalem quidem puto Medicinam esse debere: instrui vero ab evidentibus."
CELSUS.

LONDON:

PRINTED FOR LONGMAN, REES, ORME, BROWN, & GREEN.

PATERNOSTER ROW.

1828.

884.

.....
*Printed by J. M^r Gowan and Son,
Great Windmill Street.*

To John Abernethy Esquire, F. R. S.
&c. &c. &c.

Sir,

The character which you justly sustain in the literary world, your laudable and successful endeavours to extend and improve the art of medicine, and the confidence reposed in your skill by the public, all conspire to point you out as the most proper patron of a performance which has for its object the prevention of diseases, and recovery of health.

These, Sir, are the motives which induce me to dedicate to you the following sheets. I wish they were more worthy of your acceptance; but, such as they are, I freely submit them to your candour, and make no doubt of meeting with that

indulgence which is inseparable from eminent abilities.

That you may long continue an ornament to society, and an honour to the medical profession, is the sincere wish of
Sir,

Your most obedient,

Humble Servant,

JAMES RYMER.

Ramsgate, June 1st 1828.

PREFACE.

As it is generally expected of an author to give some reason for what he ventures to publish, mine, for the appearance of this volume, shall be explicitly stated: to examine and reject such customs and vulgar errors as tend to prejudice the understanding and injure health; and to afford a competent idea of diseases incident to a disordered state of the digestive organs, and of the nervous system; as well as the most gentle and effectual methods of treating them, is the intention of the following medical instructions.

The Spectator remarks "it is one of the greatest beauties of *poetry* to make hard things intelligible, and to deliver

“ what is abstruse of itself, in such easy
“ language as may be understood by
“ ordinary readers.” If this is a merit in
poetry, surely it is much more so in me-
dical writings, where the reader is in
pursuit of useful instruction, rather than
amusement.

I should be among the most ungrate-
ful men, if I did not feelingly acknow-
ledge the gracious condescension which
has placed it in my power to prefix the
Illustrious names of Their Royal High-
nesses the Dukes of Clarence and Glou-
cester, His Royal Highness the Prince
Leopold, and Her Royal Highness the
Duchess of Kent as patrons of my publi-
cation. To the subscribers, individually
I beg leave to return thanks ; and, to
those friends who have caused this book
to circulate far beyond any expectation
I had formed, I can only return my
warmest thanks ; accompanied by the
assurance, that this act of their friend-
ship will never be forgotten.

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INTRODUCTION.

Medicine being, as far as we can trace it, in all countries, in its first beginnings in the hands of men, infected with superstition, every part of its doctrine has constantly been affected with that weed, and the dietetic part perhaps more so than any other. We find always in the mouths of those tainted with this original sin, that man is to live naturally, and, on such food as is presented to him by nature. Little men! and forgetful of the Almighty's decree, that man shall earn his bread by the sweat of his brow, and of course find out all kinds of substances whence he is to procure subsistence; and if he cannot by his industry find out vegetables, or animals which may serve him for subsistence, he must cultivate and alter them from their natural state. Accordingly, men live, in as far as they live on vegetables, on such as are no where to be found growing naturally. Wheat, rice, rye, barley, or even oats, are not found wild; that is to say, growing naturally in any part of the earth, but have been altered by cultivation; that is, by the industry of mankind, from plants not now resembling them even in such a degree as that we can trace whence they drew their origin; and not only these, but most of the other vegetables that we employ. A plant of

scanty leaves, and a small spike of flowers, not weighing altogether half an ounce, is improved into a cabbage, whose leaves alone weigh many pounds, without counting those which are expanded ;—or into a cauliflower of many pounds weight, being only the embryo of a few buds, which in their natural state would not have weighed so many grains ; the plant itself, in its natural state, not only being nothing in its bulk, but in its quality, the reverse of nutritious.

Modern times are those of experiment. It is true that all our knowledge of every thing whatever, must arise from experiment only, that is, from the evidence our senses give us of what appearances nature, in other words, the creatures of the Almighty, give impressions of. Some of these impressions are received from the ideas that arise from things not at all under our dominion, or from circumstances which he governs himself ; thus, for example, a man sees a tree lose its leaves in the autumn, sees them renewed in the spring, and a new growth take place during the summer ; he sees the blossoms open in the spring, these he finds followed by fruit, which if it falls into the earth, he finds capable of producing new trees of the same species, or he sees it gathered by animals and affording nourishment. In this mode of acquiring knowledge man is totally passive ; he did not contrive to make leaves fall in the autumn, and be reproduced in the spring ; he did not contrive to make new wood grow in the summer, nor that blossoms should open that the seeds should be impregnated with the embryo ; he did not contrive

that the fruit should grow, nor did he teach animals that it was fit for their nourishment. What knowledge is acquired by attention to these natural circumstances has been called observation. It is indeed a contemplation of the benevolence of the Almighty to give nourishment and happiness to all the inhabitants of the earth.

The minds of mankind, not satisfied with their powers of observation of what passes in this earth, but being forced even for their own subsistence, to exert themselves far beyond the brute creation, are necessitated to make a farther enquiry, and that, with a labour beyond the contemplation of the benevolence of the Almighty. To those creatures who have only this earth to exist in, food, and raiment are provided without labour or attention during the short period of their lives. It is not sufficient for the farmer to look where grain grows naturally; it is necessary to try, with an infinite variety of applications that may be made to the ground, to produce crops superior to those which would arise in it without any cultivation. It is necessary for the hunter not only to observe the natural history of wild beasts, but also to try by what means he can engage them to fall into his toils. It is necessary for the fisherman, besides admiring the multiplicity of fish, to be able to contrive either to entangle them or surprise them into his nets. It is necessary for the shepherd to try by what means he can increase his flocks, so as to produce greater numbers than would naturally be propagated. It is necessary that man should try to procure better defence from the in-

clemency of the weather, than the caverns and other hollows of the ground which naturally offer themselves. So, and in many other cases it is necessary for mankind, not only to contemplate those things which happen naturally, but likewise he is constrained to form projects of his own, and to contrive means of putting both mind and matter in circumstances foreign to what would naturally arise in them, and contemplate the effects; and this we call experiment.

Observation then, and experiment are the sources of all the knowledge of mankind.

Man seems to have a degree of pride implanted in his nature, which prompts him constantly to consider himself as being far superior to what he actually is; and which instinct is the surest proof, that he is to be very superior indeed. But, as all the virtues of mankind are balanced by opposite imperfections, the pride of experiment, has in many instances thrown science into confusion, instead of forwarding it. An experiment, to prove a thing otherwise demonstrable, is totally superfluous; and not only superfluous, but, fallacious.

Whatever is too subtle for the comprehension of moderate understandings, or minute for the eye of common sense, promises but little advantage in the attainment; for it may be asserted as a general truth, that the most useful part of every science, is obvious and striking, at first view. Many of those which formerly were mysterious and abstruse, when stripped of their pedantic buckram, and foppish parade, became intelligible to common capacities.

The general interest of the medical art can never

suffer from such proceedings; for, by informing the minds of men with just ideas of its true nature, many unreasonable prejudices would be obviated, or removed. Besides, a competent idea of this subject, would enable them to distinguish modest merit, from presuming ignorance, and to form a proper judgment of such as are fittest to be entrusted with the care of their health, independent of mere names in vogue, to which accident, or more exceptionable causes have often contributed not a little. In a word, the credit of medical science, and the interest and honour of those who profess it, can never be more properly supported, than by such liberal and direct proceedings, as tend to the immediate relief of those who employ them, whether that is to be done by the administration of medicines, the use of air, diet, and exercise, or the united powers of the whole.

If, in the following sheets, I have laid much stress on the salutary power of regimen and simple medicines, it was from a thorough conviction of their efficacy; and because experience assured me they afford the most gentle and natural means of curing chronic diseases.

They have a slender title to medical knowledge, who limit the treatment of such maladies to the sole use of medicines; and it ought to be remarked, that there is not any thing to be considered properly such, which does not relieve or cure, however dignified by particular names importing its superior efficacy; and on the contrary, if the disease is removed, by air, diet, and exercise, or the most innocent veget-

able simples, they are then to be looked upon as medicines to all intents and purposes.

Should the undertaking appear exceptionable to some, from the simplicity of its plan, which adapts it to general comprehension, on the principles of common sense; I trust there are many of discerning minds and disinterested views, who will distinguish better, and readily approve a design, the great objects of which are, the prevention of diseases and recovery of health.

Were *women* as attentive to the inestimable blessings of health, as the capricious extremes of novelty and fashion, it would be fortunate for themselves and their offspring; but as this is rather to be wished than expected, it may be necessary to put them in mind, that although health does not altogether constitute beauty, beauty is the child of health, and cannot long exist without her parental influence: in vain they would strive to preserve one, without due regard to the other; the great secret of improving beauty consists in the art of preserving health—'tis that which animates, and lights up the countenance with expressive smiles, which touches the lip with vermilion, and diffuses o'er the cheeks a freshness and vivid glow, surpassing Circassian bloom. It gives sweetness to the breath, and lustre to the eye; but let sickness and disease overshadow the beautiful form, and its appearance is no longer retained; the snowy whiteness of the skin is exchanged for a sallow hue; the lustre of the eye is tarnished, and the blooming cheek will fade! Is it not then to be lamented, that the true value of health is seldom

sufficiently regarded, 'till it is either impaired, or irretrievably lost?

Was it further necessary to shew the importance of health, and its estimation, among the wisest people in all ages, we need only take a view of the means they devised to attain it. In the infancy of physic the Egyptians and Chaldeans first introduced the method of placing the sick in public streets and highways, in order to receive information from travellers passing by, in what manner they had been cured of the like diseases.—*Herodotus* tells us the *Babylonians* obliged themselves by a law to observe the same wise custom. In Greece it also prevailed, where offerings on *Votive-tables* were hung up in the temple of *Æsculapius*, the god of physic, whereon, the name of the disease, and medicines which cured it, were engraved, and recorded, for the public good. From these rude outlines, the venerable *Hippocrates* collected his aphorisms, so justly admired for ages, and delivered down to posterity, as the very basis of true medical knowledge.

When we look back on the slender causes which gave rise to the noblest productions of nature and art, we need not be surprised, that by such information, great advances were made in the method of curing diseases. Those who practised in this simple manner, were not deluded by theory, or hypothesis, but judged from the evidence of their own eyes, taking it for granted, that what had cured one, might prove equally beneficial to another under the like circumstances; and it may be again remarked, that knowledge thus experimentally acquired, is more

genuine, and less fallacious, than what we obtain by more elaborate means.

It ought not therefore to be slighted because it springs from humble sources; but rather should be considered like gold in the mine, which lies buried with baser metals, and often is brought to light by mere chance, after, human industry had sought for it in vain.

In this manner the Lord of the creation with all his boasted reason, has often been obliged to borrow information from the beasts of the field, and the birds of the air, according to the elegant poet of the following lines

“ Thus then to man, the voice of nature spake,
“ Go, from the creatures thy instruction take :
“ Learn from the birds, what food the thickets yield,
“ Learn from the beasts, the physie of the field :
“ Thy arts of building from the bee receive,
“ Learn of the mole to plough, the worm to weave ;
“ Learn of the little Nautilus to sail,
“ Spread the thin oar, and catch the driving gale.”

POPE.

After the discovery of a new world in America, the virtues of many vegetables were made known by the native Savages, to the Europeans, who by their superior skill in physie, greatly extended and improved the use of those salutary medicines; but as we have not a specific for every disease, like the Peruvian bark for the cure of intermittent fevers, 'tis evident that great judgment is necessary to make one and the same medicine answer many different intentions of cure.

The element of fire, if used with discretion, will

warm and cherish the body; but immoderately applied, it becomes destructive: and wine, the most generous of cordials, which exhilarates, and makes the heart glad, if taken in excess, will benumb the senses, and turn the man to beast.

Like those perverted blessings, are powerful medicines, when mis-applied; for, that sovereign remedy, the Peruvian bark, and the almost divine powers of opium, are in their own nature the same, whether in the hands of the ignorant or skilful, although the difference of their effect will be very great, according to their proper, or improper use. It is not therefore only the thing itself, but also its use or abuse which constitutes the remedy or poison.

That sagacious and incomparable physician Sydenham, whose skill was equalled by nothing so much, as his exceeding honesty, by diligent and repeated observation, he discovered what his envious contemporaries could not before find out, with all their pretended subtlety, and acuteness of reasoning, namely, that the free, and unlimited use of fresh air, and cold fluids were indispensably necessary in the small pox; and that the contrary method, was the sure way to kill the patient, although in his time, it was the prevailing practice. This I mention to shew the superiority of practical knowledge, and the fallacy of those who expect to cure diseases without it; as well as to demonstrate the power of cooling regimen, which did more in subduing that destructive disease, than all the *Materia-Medica* put together.

If the efficacy of regimen is so very apparent in acute diseases, the propriety of its use in maladies of

the chronic kind, must still be more evident ; for as they are attended with less immediate danger, it may be longer continued, and varied, according to the nature of particular circumstances, in such a manner as to produce a gradual, lasting, and salutary change in the bodily system ; especially when assisted with mild and simple medicines.

Instead of this rational method of proceeding, a *farrago*, or unnatural hodgepodge is often directed for the patient, where many ingredients of contrary qualities, are jumbled together, in spite of their own enmity to each other. The jarring elements of fire and water, might as well be expected to agree. But, even admitting the efficacy of the several ingredients, when separately considered, according to such modes of prescription, there is generally too small a quantity of any one of them, to make it act with sufficient power.

What then is to be expected from those compositions, which, either considered in whole, or in part, exclude every idea of answering their proposed end? But should the event prove favourable, it would be impossible to determine, which of those several ingredients was most conducive to the cure ; consequently, no improvement could thence be made in the art of healing. Such mixtures are well calculated to keep both patient and prescriber in profound ignorance of what is productive of good, if fortunately, such should be their effect : they may indeed, as usual, be said to be made *according to art*, for nature has nothing to do with them.

Whence this extraordinary fondness for com-

pound medicines could proceed, is not easy to discover, without it was from our ignorance of the true qualities of *simples*. Why should we attempt to do that which nature with her own salutary hand, and more than chymical exactness, has done much better? for every plant is in reality, a compound of oil, spirit, and essential salt, differing in specific quality, according to the proportions of those principles.

Such substances then, are already prepared for the purposes of medicine; but if we torture, and disjoin their parts, we defeat the intention of nature, by making them what they were not before; and thus convert natural medicinal substances, into dangerous artificial poisons.

The bitter almond for example, contains both a poison, and its antidote; for in its natural state, it may be taken as nourishment, with the greatest safety; but only separate from it, the two sorts of oil, of which it is possessed, the one from its husk or membrane by distillation, the other from its white or mealy part, by pressure, and we shall find, that ten drops of the former in an ounce of water will kill a dog in half an hour; whilst on the contrary, the other is friendly to the constitution and affords wholesome nourishment.

Surely there is a nearer road to the cure of *chronic diseases*, than by the stomach and bowels, from what are called medicines: but the wide extended path of nature is often deserted, whilst men are ridiculously employed in making their way through narrow avenues, beset with briars and thorns; and so long

as they profit largely by this kind of labour, 'tis no wonder, that now and then, they should be tempted to go a little about.

Whatever benefit is suddenly produced by the effects of strong medicines, is generally done with some degree of violence to the constitution, and is seldom lasting; whereas air, diet, and exercise, do not like the former affect particular parts of the body, and for a short time only; but are always acting upon the general habit, in a natural, uniform, and gentle manner. Those remedies do not pall the stomach, and subject the patient to any severe penance; but on the contrary, increase the appetite, strengthen, invigorate, and cheer the spirits, promote a free, and equal distribution of the blood through its vessels, as well as the several discharges, depending upon a due circulation.

Diseases which are slowly produced, can only, with safety, be slowly taken away; and few I believe will oppose a truth so manifest, or deny that this purpose is best effected by air, exercise, and a medicated diet: those are the *grand alteratives* in Nature's dispensatory, those the mild, but powerful simples which in due time will produce a salutary and lasting change, attended with circumstances which cannot fail to recommend them, namely, they may be beneficial to all, and can be hurtful to none.

In general, chronic diseases are the offspring of intemperance, and irregularity of the passions, which, by weakening the nervous influence, impair both appetite and digestion, and render the natural discharges of the body, irregular and defective. To

those causes may be added some others arising from an hereditary taint, or acute diseases terminated by an imperfect crisis. The too frequent and unseasonable loss of blood, by the lancet, or preposterous use of strong medicines, as vomits, purges, mercury and the like, may also lay the foundation of such diseases.

Diseases peculiar to certain places, which are therefore called endemial, as well as those prevailing in different nations and climates, or according to the nature of people's various employments, and manner of living, all evidently shew, how much the health may suffer, from causes always present to the body, and insensibly acting on the constitution.

From this obvious and self-evident principle, we may expect to prevent or cure the most obstinate chronic diseases, by the long continued use of regimen, and simple medicines; which, being regularly continued, without violence to the constitution, have the power to produce in the body, a gradual, and as it were, a mechanical change.

In short, if the damp unwholesome air of particular places has been found to occasion agues, and dropsies peculiar to such situations, as in the fens of Essex and Lincolnshire; if a total abstinence from fresh vegetables, and the excessive use of salt and smoke-dried animal food, or living in low marshy places contiguous to the sea, have in a thousand instances, been known to produce the *scurvy*; and if a sedentary, inactive life, has been observed to enervate the body, bring on indigestion, paralytic numbness and wasting of the limbs, hysterics and melan-

choly ; it will then follow, from the principles of common sense, that the use of dry clear air, simple vegetable food, and moderate exercise, will not only prevent, but also powerfully contribute to cure such diseases ; since those may be all uniformly applied to the body, and will constantly act on every part of the whole, in a manner directly opposite to the morbid causes.

Those are the great and universal remedies which nature calls to her aid in the cure of diseases : they are not like particular substances, taken from a changeable *Materia-Medica*, the medicines of to day, and to-morrow, but will permanently continue to exert their sovereign power, to the end of the world. How different is the fate of many things which ignorance and superstition, or the excessive caprice of mankind, had, for a season, stamped as genuine and infallible ? for as the hand of time shall shift the scene, and tyrant custom prevail ; many of those very medicines and modes of practice, which have so much captivated their enamoured votaries, like others which went before them, will be viewed by posterity as airy nothings, the very baubles and bagatelles of the science.

I would not hence be understood to mean that regimen should entirely supersede the use of medicines ; on the contrary, I know they are often absolutely necessary and highly beneficial. But it is much to be regretted, that many insignificant trifles have been introduced into practice, and were much confided in, whilst regimen was neglected and set aside. The preservation and recovery of health

rather depend on temperance and the regulation of the passions; the proper choice of medicated aliment, the common benefits of fresh air, and exercise, than the frequent administration of medicines.

The medical science, as to its proposed end, is the most noble and useful of all others, having nothing less for its object than the preservation and recovery of health, which is the very basis of human happiness; for sickness and disease not only rob us of all enjoyment, but, at last, of life itself.


Much pains have been taken to cure diseases, but very little to prevent them; although the last intention depends as much upon rational and certain principles, and may be as properly reduced to an art, as the former.

If the cure of diseases, is a thing of great importance to the general good; the art of preserving health is matter of still greater moment; for many diseases, especially those of long continuance, do not always admit of cure: they may not indeed prove suddenly destructive, but the constitution receives a shock from every attack which weakens the springs of life, and takes something from its length of days.

Although it is not so much the interest of the profession to prevent diseases, as to cure them, it is equally their province and duty; and if attention were paid to this branch, by means proportioned to the end, they would probably be more successful in the first than last; yet such is the fatality of medical science in what concerns the *prophylaxis* or prevention of diseases, that many salutary rules and cautions, tending to the preservation of health, are either

blindly overlooked, or neglected : and many pernicious customs still retained, to its manifest injury.

The source of this evil seems to arise from people not being duly sensible of the value of health, till they have lost it ; and the evils they might certainly avoid on this occasion ; for, in general, medical advice, and the services that might result from it, are undervalued and disregarded, on the mere presumption that the diseases they are said to have prevented would probably never have happened. But if intemperance and neglect are known to destroy health ; temperance and prudent caution will as certainly preserve it. Valetudinarians would therefore act a friendly part to themselves in supposing a physician as much entitled to reasonable gain, for laying down rules towards the preservation of health, as he who should prescribe medicines with a view to restore it,



A

TREATISE

ON

DIET AND REGIMEN.

SECTION I.

Of the general functions of the Stomach, and natural qualities of Saliva, Bile, and Pancreatic Juice, subordinate to its use; and of the Disorders proceeding from depravity, redundance, or defect of those fluids.

LIVING beings, both of the vegetable and animal creation, constantly expend some part of their fluids or solids, or both, when they are exerting any action, or performing any function of life. They may perhaps remain in a dormant state for some time without loss. It is necessary when a loss is sustained, that it should be supplied by the addition of some new matter; and this new matter is called their food. If this matter has not the same qualities with the matter of the parts of the body which are lost, then it is evident that it must undergo a change, and be converted into a substance, possessing the same

B

qualities, and consequently being of the same species with that which was lost.

Without considering the constant loss which I have stated, animals, during a certain period of their lives, are acquiring new parts, and increasing in bulk; and vegetables are continually forming new parts. It is necessary, therefore, that food should be employed to supply matter for this formation and increase.

There are organs in animals for receiving the food, and retaining it for a certain length of time before it passes into the general system of vessels, which we call the organs of digestion.

In vegetables, although the food differs from the solids or fluids that it is to be formed into, yet it appears to be absorbed by the ends of the fibres of the roots principally, and propelled, by some organ subsisting there, immediately into the general system of vessels without any previous alteration.

One great distinction between animals and vegetables therefore is, that animals have organs of digestion, in which the food remains for some time before it gets into the general system; and in vegetables the food passes directly into the general system, without being detained, or suffering any previous alteration.

It is to be presumed that there is some object to be attained by the food being stopped for some time in the organs of digestion of animals. The most obvious one is, that the food undergoes some change there.

In different animals, the organs of digestion are

various ; and therefore, it is most probable, that the changes which take place in different animals, are different. Or that the mode of life, or some other accident, renders a different apparatus necessary for this process.

There are other substances beside the food which are poured into the cavities of the organs of digestion from the vessels of the animal, which serve either for assisting the change, or enter into the substances formed.

One principal organ of digestion in the human body, is the stomach. It is the business of Anatomy to show minutely the exterior figure, the internal structure, the situation with regard to the other parts of the body, the blood-vessels, the nerves &c. which supply the part to be described : but it is not necessary for understanding the functions, or the diseases incident to it, that all these things should be minutely attended to.

The stomach is a kind of sack or bag with two openings into it. One of these openings is the termination of a tube which we call the *œsophagus*, which rises up through the thorax, behind the lungs to the throat, where it is wider, and called *pharynx*, and communicates with the mouth, so that substances put into the mouth may be forced through the *pharynx* and *œsophagus* into the stomach, even when they do not tend to be carried into it by their own weight. The muscles which force the food into the *pharynx*, and from the *pharynx* through the *œsophagus* into the stomach, it is unnecessary to inquire into.

In a living animal, if there be nothing in the stomach, there is no cavity; nor do the sides fall flat upon one another, as they would do by their own weight, or by the pressure of surrounding substances; but it contracts so as to retain its proper form, and so as that the inner surfaces are every where brought into contact; and when any substance gets into it, it distends and enlarges the whole of it in equal proportion. But there is some doubt if this be the case when vapours are contained in it; for as far as we can judge by our feelings, vapours distend the stomach unequally in some cases.—It is to be observed, that vapour in the stomach, or indeed in any part of the intestinal canal, is always a morbid affection.

No diseases incident to the human body, are more frequent than those of the stomach and bowels; or more fatal in their event, when neglected, or improperly treated; for, then they frequently terminate in obstinate, or incurable maladies of the chronic kind; and, on the contrary, there are few diseases, whether acute or chronic, which do not in some degree affect the stomach and viscera.

Before I proceed to consider the particular disorders of the stomach and bowels, with the most effectual methods of their cure, it will be necessary to describe the properties of the saliva, as well as those of the bile, two animal fluids which principally contribute to digestion.

The saliva is a penetrating soapy liquid, prepared by the glands of the mouth, as the proper solvent which nature employs, to soften and macerate our food, the better to assist digestion, as well as to create

appetite; for it has been observed that those who discharge it too profusely by frequent spitting, have generally little appetite, and bad digestion.

After long abstinence from food, or in scorbutic habits, where the blood is vitiated, it is rendered somewhat putrid.

By changing its nature, it becomes extremely hurtful, and may be converted into a mortal poison, of which we have the most striking, and melancholy instance in the bite of a *mad Dog, where the venom is chiefly lodged in the saliva.

* The terrible effects of the Poison from the bite of a mad Dog appear after so different a manner in different subjects, that the accounts given of them by authors, being generally taken from single cases, are very different, and hardly consistent with one another. The main symptom indeed they all agree in, that is, what they call the *Hydrophobia*, or dread of water.

The wound from the bite of a mad Dog differs not at all from that made by a common bite, and is as easily healed; and it is usually a considerable time before any bad consequences of it appear. There are instances where these have been deferred to three, four, or six months, nay, some authors say, to a year, and longer. *Galen* himself saw one case after a year.

The first approaches of the distemper generally discover themselves after this manner:—a pain is felt in the part which was wounded, which by degrees spreads itself to the neighbouring parts; a lassitude follows, with uneasiness in all the limbs; then the patient grows pensive and sad, with disturbed and unquiet sleeps; complains of an oppression at his breast; his pulse intermits; his nerves tremble; he has cold sweats, a great nausea, sickness at stomach, and loathes food; and though he has an inward heat and thirst, and desires to drink, yet he swallows liquids with the greatest difficulty. These symptoms increase, and the next day, from the great uneasiness and pain which he finds in swallowing, he conceives such an aversion to liquids, that at the first sight of them he falls into convulsions and agonies, and cannot get down the least drop. This *Hydrophobia*, or fear of Water, has always been accounted the surest sign and mark of this poison, by which it is distinguished from all other diseases.

The health of Nuns, and Monastics who rigorously enjoin themselves the penance of long fasting, suffers much on that account. They are observed to have an offensive breath, attended with looseness

At this time a fever usually appears, with a quick but low pulse, without the least sleep ; a hoarse voice ; a gathering of froth in the mouth, and spitting out of this upon the by-standers ; universal convulsion, particularly about the throat. During this tragical scene, which has hitherto generally proved fatal in about two days, a delirium comes on, sometimes with most terrible symptoms of rage and fury, and attempts of doing all possible mischief, even to the most beloved friends and relations ; but more commonly, without any *furor*, it is of the *melancholy* kind ; and the wretched sufferer resigns to death, and prepares for it ; bids those about him take care of themselves lest he should do them mischief, and begs that they would trouble him no more ; and his breath growing shorter and shorter, he expires in convulsive fits.

As to the Hydrophobia, the patient at first has no dread of water, nor any aversion to liquors ; on the contrary, he sees them with pleasure ; being thirsty he desires drink, but then soon wonders what should be the reason that he is not able to take it :—he contrives ways to do it by endeavouring to suck through a quill, &c., but soon cries out, *it is impossible !* When asked why, he answers “it will not go down, it strangles me,” and begs to be excused trying any more.

In the early stage of Hydrophobia, the treatment which I suggested in a paper published about seven years ago, might probably effect a cure, viz. the introduction of a flexible tube into the stomach and injection of water by means of a Syringe. I also recommended the patient to be immersed in the cold or tepid bath. *Celsus* who flourished in the first century, says “Tis the only remedy ;” advises if the patient cannot swim, to let him be kept under water, that he may swallow it, and then at times be lifted out of it :—if he can swim, to hold him under by force, that he may drink whether he will or not. This practice was grounded on the authority of the Greek physicians, from whose rich stores, this Latin author has extracted, and digested into a small compass, the best system that ever was composed of Medicine.

Unicum remedium est, nec opinantem in piscinam non ante ei provisam projicere, et, si natandi scientiam non habet, modò mersum bibere pati, modò attollere ; si habet, interdum deprimere, ut invitus quoque aquà satiatur ; sic enim simul, et sitis, et aquæ metus, tollitur.—*Celsus, liber v. caput 27.*

of the teeth, sickness at stomach, and giddiness of the head. Those effects manifestly arise from a partial corruption of the animal fluids ; and from the same cause, the milk of nurses, after long fasting, is rendered yellowish, salt, and nauseous to the infant, insomuch that it either refuses to suck, or having taken it into its stomach, is thence thrown into purging, or convulsions. The urine is also rendered high coloured and foetid, sometimes creating a strangury or difficulty of making water.

All those disagreeable symptoms are occasioned by the sharp salts and rancid oils which at other times are carried off by urine ; but which, being now too long retained, powerfully dispose the animal juices to a state of putrefaction. Animals, therefore, which die of hunger, seem rather to perish by a corruption of the blood, or change of its quality, than from a diminution of its quantity ; for in deep consumptions, where the wasting of body is much greater than in those who die of hunger, the patient sustains life for many months, though apparently exhausted.

From what has been said a circumstance though strange, becomes perfectly consistent and intelligible ; namely, why animals will so long survive, even twenty days, or more, by the use of water only ; for this fluid refreshes and purifies the blood, by dissolving the sharp salts, and corrupted oils, which being conveyed off by urine, the body is thence preserved.

It has been observed by the assistance of a microscope, that the pale fluid circulating in the transparent vessels of a languid frog, soon acquires a more

florid colour, and brisker motion, after that reptile has been supplied with its proper nourishment. This experiment evidently shews the great advantage of eating often, and in small quantities, a caution of much more consequence to those of weak stomachs, than is generally imagined ; for, by long fasting, they often become faint, with sickness at stomach, and universal languor, not only from want of circulating power in the blood, and its tendency to putrefaction ; but also from its emptiness or excessive collapse. When the stomach is moderately full, it uniformly sustains, or bolsters up, the liver and spleen ; but when empty, the liver descends by its own weight, and pulling down the diaphragm, with which it is connected, excites a painful sickly sensation, which in some degree may be removed by gentle pressure on the abdomen, but more effectually by replenishing the stomach with food.

From this circumstance also may be inferred, that the vast recruit of strength after eating, is owing to the introduction of fresh chyle into the system, and that an animal body, like a vegetable, cannot long survive with vigour, without the reficent power of new juices, to supply the loss of those which were wasted, and carried off by the action of the body ; for as oil is the pabulum of flame, so that vital fluid blood, in purity and due quantity, is indispensably necessary to feed the lamp of life ; and this chiefly depends upon the digestive faculty of the stomach, rather than the quantity, or quality of its aliment ; since daily observation informs us, that plenty of the most nutritive aliment will be insufficient to

sustain the infirm, whilst those of strong constitutions, and good digestion, will gain strength, though living sparingly upon the hardest fare.

Hence also may be seen the great advantage of taking fluid acescent nourishment often, with a view to preserve it in a state of purity, especially in scorbutic, or consumptive habits, where it evidently tends to putrefaction.

From the irritation of saliva on the spongy nervous lining of the stomach, seems principally to arise that sensation we call hunger; but, when this delicate membrane is shrunk up, and destroyed, by the immoderate use of spirituous liquors, or the no less pernicious effects of harsh astringent medicines; loss of appetite will necessarily follow, which never can be restored.

Thus it will also appear how both appetite, and digestion, may vary according to the different quantity and quality of the saliva; as well as the different degree of natural feeling in the nervous coat of the stomach; and, why bitters, steel, and mineral acids, may quicken a languid appetite for a time, although their long continued use will afterwards destroy it.

The wonderful influence of the stomach and bowels, in subduing and changing the property of alimentary substances, still appears more evident, by observing that some poisons may be divested of their malignant power when swallowed, which, when applied to the open vessels of an ulcer, or fresh wound suddenly have proved mortal.

The German mountebank, who caused an enraged viper to bite a piece of bread, which he eat be-

fore the multitude, seems to have been acquainted with this circumstance; for after being apparently taken ill, and mimicking convulsions, with other grievous effects of the poison, he had recourse to a dose of his *antidote*, and, in consequence of its pretended efficacy, suddenly recovered.

As the saliva irritates the stomach, creates appetite, and helps to dissolve the food; so *bile* in the small intestines is conducive to the same end, and still further assists in perfecting digestion.

Bile is an animal soap, of a yellowish colour, prepared in the liver, as by a large gland, and serves to mix, and incorporate the oily and watery parts of our food, so as to form a smooth emulsion, which could not otherwise have been so well effected; for oil, and water, repel each other, and will not mix without the interposition of *lixivial salt*, which, by the power of heat, forms that concrete called soap.

That bile possesses a soapy quality is evident, by its use among fullers and silk-dyers, who employ it with success in discharging oily spots or stains. It is also endowed with so strong a dissolving power, that curdled milk in the stomach of a calf is thence rendered fluid, as soon as it passes into the small intestines, which seem to answer the purposes of a second stomach. This saponaceous fluid may therefore be considered as a liquid soap, and natural purgative, which stimulates the bowels, and quickens their motion, in expelling the fœces or grosser part of our food.

It may be proper to observe, that, as want of saliva lessens appetite, and impairs digestion, so the bad

qualities, redundance, or defect of bile, produce various disorders of the stomach and bowels, and render the body preternaturally costive or laxative. Where the bile is rancid, and corrupted, or abounds too much, it occasions sickness at stomach, and vomiting, head-ache, colic pains, and diarrhœa with stools of a deep yellow colour; but they are green, porraceous, and frothy, where redundant acid prevails.

Whether bile offends in quantity, or quality, nothing will so much correct it as plentiful dilution, and the liberal use of vegetable acids; since these two fluids have been experimentally found to neutralize or destroy each other.

In such cases the patient should totally abstain from fermented liquors (rough cider, or Rhenish wine excepted). Spare vegetable diet of the acedent kind, and the plentiful use of pure water, with lemon, or orange juice, will afford relief: but a solution of crystals of tartar in pure water, with currant jelly, which will impart to it a saponaceous quality, is preferable to all the rest: it not only resists putrefaction, and promotes the secretion of urine, but also keeps the body gently laxative.

When bile is deficient in quantity, or too mild and inactive, or so thick and tenaceous, as to obstruct its canals, habitual costiveness will follow; and if such depravities, to which those of a sedentary life are most subject, be not removed by proper medicines, gall-stones will often be formed in the gall-bladder or its duct; from which, obstructions of the liver, a jaundice, dropsy, or other chronic diseases, are frequently the consequence.

Pills compounded of soap and aloes, with fresh whey, and nitre, or a small portion of Alkaline salt, and exercise on horseback, will exalt and attenuate the bile, and render it more active and deterstive.

That the bile is a fluid of great use in the animal œconomy, is manifest, seeing, that for its preparation, nature has appointed so large and complicated an organ as the liver.

The *Pancreas* is a large gland, similar in structure to those which secrete the saliva; of a flattish, oblong form, and extends across the abdomen, behind the stomach liver and spleen: by its blood-vessels it communicates with the spleen and mesentery; and by its nerves, with the stomach and liver.

The bile, especially that proceeding from the gall-bladder, is somewhat glutinous, insomuch that although it is a saponaceous fluid, it requires dilution, to make it mix more readily with the *chyle*, as well as to attenuate, and render that nutritious emulsion thinner and more fit to enter the lacteals.

For this purpose, the pancreatic juice is plainly intended; because, in quality and consistence, it exactly resembles saliva, and seems to answer the same purpose in the alimentary tube, as saliva in the stomach, namely, farther to macerate the aliment, to exalt the nature of chyle, and render it less heterogeneous, and dissimilar to the blood, after being thus diluted, and incorporated with a fine animal lymph, strained off from the blood itself.

That the pancreatic juice should also more effectually mix with and dilute the bile, its excretory duct unites with that of the last fluid, and forming

one common canal, empties itself into that part of the alimentary tube, nearest the stomach, called Duodenum.

From the magnitude of the pancreas, the quantity of its secreted juice, must be very considerable; and if it is affected by the exhibition of mercury, in the same manner as the salivary glands, to which it is similar in structure, it can then be no wonder that the waste of that fine, nutritious fluid, by a mercurial salivation, should exhaust the body, and occasion an incurable consumption.

As the pancreatic juice is necessary for the dilution of chyle, towards its free passage through the lacteal vessels into the blood, without which the animal system could not be nourished or sustained; it will follow, that its defect, or preternatural tenacity will produce obstructions of the lymphatic vessels and mesenteric glands, and occasion that particular species of consumption or wasting of the body called *marasmus*.

SECTION II.

Of Animal Digestion, or the Conversion of Aliment into Nourishment, or Chyle; and of Nutrition, or the change of Chyle into Blood.

Having pointed out the qualities of saliva, bile, and pancreatic juice, as subservient to the office of the stomach and bowels; and also the general disorders arising from a vitiated state of these fluids, I shall now consider the nature of animal digestion, and the various diseases proceeding from a defect of that extraordinary faculty.

The stomach is the great source from which the animal body derives its nourishment and support. Here the first process of preparing that vital fluid, called blood, is begun, and as its digestive faculty is duly, or imperfectly exerted on the aliment, so the blood will be rich, balmy, and pure; or crude, watery, and depraved: the first of these qualities will contribute to health; the last will render it unfit for circulation, and the purposes of life; and, consequently, lay the foundation of various diseases.

The stomach may be considered as a vessel, or refectory placed in the centre of the body, for concocting, and digesting the food daily taken into it for sustenance. By the action of mastication or chewing, the aliment is comminuted or broken down, and, by mixing with the saliva, is macerated and reduced into a pulp: thus prepared, it descends into

the stomach, where, assisted by heat and a supply of *gastric juice*, similar to the saliva, it is supposed to undergo a slight degree of fermentation, by which the included air is rarefied and expanded; and bursting from its confinement, destroys the solid, compact texture of the aliment, rendering it one degree fitter for nourishment.

This will be more easily effected, as all animal and vegetable substances lose their cohesion, and naturally tend to dissolution so soon as circulation through their vessels ceases, and when thus deprived of their contained air; which has been experimentally found to be the very *vinculum* or bond of union which holds their parts together.

The mass being sufficiently digested, is expelled from the stomach into the alimentary tube proceeding from it, where, its most nutritious parts, like a fine emulsion, which is called *chyle*, are strained off and absorbed by the *lacteals* or milky vessels, and discharged into the *receptacle of chyle*; whence, by the *thoracic duct*, it is conveyed into the blood, and, by agitation in the lungs, and repeated circulations with the general mass, at last acquires the same colour, quality, and consistence, as that fluid; or, in other words, is elaborated and ripened into blood.

But although this appears to be the most simple and rational theory of accounting for digestion, it is not unexceptionable, and, far from being universally adopted; for some physiologists have ascribed it to animal heat; others to a dissolving ferment in the stomach; and others to its action, or muscular force on the contained aliment; but, indeed, it seems

rather to be effected by a combination of the whole, namely, by heat, moisture, and motion.

Putrid substances taken into the stomach of carnivorous animals, have been found *sweet*, and inoffensive to the smell, soon after being swallowed; and, in those living solely on herbage, no signs of fermentation could be discovered when examined in the same manner: hence there is reason to think that digestion is neither performed by a putrid, nor an acescent ferment; and that, when either of these qualities prevails in the stomach, they are not natural, but morbid appearances, and certain signs of a bad digestion.


We see, therefore, that this obscure animal process is still a secret in nature, having, for many ages, divided the opinions of physicians and physiologists, several of whose doctrines, though directly opposite to each other, have notwithstanding been strenuously supported by their advocates as right: this plainly shews, that instead of real and substantial knowledge, we have only been presented with vague and often inconsistent surmises, which, without doubt, some have advanced from a conviction of their truth, others from a desire to advance something that might appear new, and others from personal enmity and the spirit of contradiction, contending for superiority rather than truth.

From what has preceded, it will evidently appear, how that vital stream, blood, is continually supplied and replenished with fresh chyle passing into it by the milky vessels, like so many little currents which keep up the circulation, and repair the daily waste

made by exercise and the natural discharges of the body ; and how *indigestion*, or a fault in the vital functions of the stomach and bowels, and their want of power to elaborate and prepare those nutritious juices, may at last, vitiate the solids, and produce ill health ; for, by a kind of real transubstantiation, they are converted into the very substance of animal body ; all its constituent parts, even the bones themselves, being originally in a fluid state.

Under such circumstances the constitution may not improperly be compared to the fabric of an edifice, the superstructure of which will frequently want repairs, when its foundation is bad and infirm.

However opinions may differ respecting the precise manner by which digestion is brought about, it is certain that the stomach, like the heart and other vital parts, derives its principal power and energy from the nerves ; for, when those with which it is supplied are cut or injured, both appetite and digestion are suddenly destroyed.



SECTION III.

The Sympathy and Communication of the Stomach with other parts of the body, and their mutual affections thence arising.

The stomach, as already observed, being the great source of nutriment, and amply supplied with nerves, the instruments of all sensation, holds a two-fold intercourse with every part of the body; first, by the conveyance of chyle into the blood; secondly, by nervous sympathy, from which its impressions are communicated to the brain and other parts, giving it extensive, and extraordinary influence over the whole corporeal system; insomuch that there are few diseases, in which the stomach and bowels are not affected. Accordingly we find, that whenever the body is invaded by any morbid cause, or the mind oppressed with sorrow, the stomach immediately feels their malignant power. It then neither craves nor can dispense with its usual food; both appetite and digestion suddenly cease; nausea and sickness succeed, and its contents are rejected; and, as it is thus affected at the attack of a disease, so the first signs of convalescence are usually attended with a return of appetite and digestion.

Upon the state and condition of this organ, therefore, in a great measure depends the health and well being of the animal body, and also the efficacy of such medicinal substances as may be found necessary

to relieve its maladies; for, here their power is first exerted; and, although some of those may pervade the system, as *alteratives*, and act in a manner peculiar to their own nature, their operation will be considerably diversified, according to the degree of sensibility, and irritability existing in the stomach, as intimately connected with the general habit; a circumstance, which, in the treatment of diseases, has not always been sufficiently attended to.

The strength and weakness of the animal body, and the regularity of its functions, particularly those of the stomach, seem principally to depend upon the *nervous power*, which is increased, or diminished, from various accidental causes: thus, pure, fresh air, the chalybeate waters, and the cold bath, which brace the solids, add greatly to bodily strength; and wine, or warm cordial liquors, by invigorating the stomach for a time, not only communicate strength to the body, but fortitude to the mind, by increasing the nervous power. On the contrary, a putrid, inelastic, moist air; long fasting, grief, or intense study, are found to diminish bodily strength, to impair digestion, and lay the foundation of chronic diseases.

For a particular proof of the more general and immediate communication of the stomach with other parts, may be mentioned that tormenting pain the tooth-ache, which has frequently been relieved by a large dose of opium, taken into the stomach, before it could enter the blood, or arrive at the part affected by the common road of circulation. The trembling hand of a hard drinker presently becomes more steady for a time, after taking a cordial dram, merely by

touching and invigorating the nerves of the stomach; and, on the contrary, the subtle and insidious power of some poisons, is destructive to animal life in a few moments! As violent affections of the mind will disorder the stomach, so a morbid state of that organ will mutually affect the mind, and occasion languor, hypochondriacal complaints, low spirits, and melancholy.

The brain and mental faculties are observed to suffer from injuries of the stomach, and vice versa; for, a violent blow on the head, or concussion of the brain, will excite that convulsive motion of the stomach called vomiting; and a profusion of bile, or other offending gross humours in the stomach will occasion giddiness and head-ache.

So great is the sympathy between the head and stomach, that it is difficult to know which was originally affected, although an improper distinction on such occasions, might be attended with the most dangerous consequences; for example, should a blister be applied to the head when only affected by sympathy from bile at the stomach; or, should an emetic be administered when the patient is seized with vomiting from inflammation of the brain; the first would occasion unnecessary pain, and the last, by straining the body and overcharging the inflamed vessels of the head, might produce delirium, apoplexy, and death.

The better to make a true distinction in such cases, it will be proper to observe whether the head or stomach was first affected; for, thence may best be known the original seat of the disease.

There is also a manifest consent between the stomach and skin; for, an eruption on its surface, like the *nettle-rash*, after eating muscles, mushrooms, or other noxious substances, has often been observed to terminate their bad effect. Besides, when the pores of the skin have been obstructed, or in other words, when the patient has taken cold; the perspirable vapour, which ought to have been carried off from the surface of the body, by falling upon the internal parts, occasions flatulence, pinchings in the bowels, colic pains, or a diarrhœa; and the same bad effect is the consequence of exposing the body to easterly winds, or a stream of cold, damp air.

Such sympathetic disorders of the stomach and bowels from obstructed perspiration, are most effectually relieved by external application, namely, the warm bath, flesh-brush, plentiful dilution, opiates, and wearing flannels next the skin.

The stomach also communicates with the liver and kidneys; for, the stone and gravel frequently produce vomiting, and a profusion of bile, which can only be removed by attending to their cause.

From what has been said, it follows, that such is the intercourse between the body and mind, and so great the sympathy of the stomach with different parts of the corporeal system, that they alternately communicate their sensations to each other. Thus, local disorders of that organ, will at length affect the whole constitution, and produce chronic diseases, in consequence of indigestion, and crude chyle, by which the blood is impoverished and rendered unfit

for nourishment; hence, the gout and scurvy, a dropsy, or consumption.

On the contrary, although the stomach had previously been in a sound state; should the mind become deeply impressed with grief, or the vital parts attacked by *gouty*, or other morbid matter, both appetite and digestion fail; pain, sickness and vomiting are brought on, and oftentimes confusion of ideas, loss of memory, dejection of spirits, melancholy, and despair.


Such is the extreme sensibility of the stomach, especially when disordered or inflamed, that the skin when excoriated by a blister, is not more exquisitely tender; so that harsh irritating food, scarcely affecting the palate, will then produce violent pain, sickness and vomiting.

By the same exquisite sensibility it is endowed with elective or instinctive power of choosing whatever is grateful and beneficial to itself, or refusing what is injurious to the constitution; and therefore, by some it is not improperly called the *conscience* of the body: when the stomach says no, every morsel would prove injurious instead of being converted into nourishment; but if it consents, or asks for more, more may be safely taken. There are very few who have not some particular propensity or aversion to certain kinds of food; cheese, honey, or other things of the like nature, which are agreeable to some, act on others with the violence of poisons.

Thus, like a watchful centinel, the stomach gives warning, and denies admittance to what would be injurious, and often craves with avidity such things

as prove salutary. Hence the eager thirst for cold water in the height of a burning fever, which, being drank, has been known to terminate the disease, and save the patient's life, after the power of medicine had been tried in vain.

Perhaps it may be objected, that the stomach is not its own sufficient guide, because it does not always discover the insidious and deadly power of some poisons, till too late ; but we might as well complain of dim and defective eyes, because they do not as easily perceive a mote as a mountain ; or since minute objects are more distinctly seen by the assistance of a microscope than the naked eye.



SECTION IV.

The nature, treatment, and cure, of idiopathic or primary Diseases of the Stomach and Bowels proceeding from Intemperance, Culinary Poisons, the abuse of Medicines, and other causes: with the necessary distinction between those primary affections, and such as are symptomatic or secondary.

In the preceding section of this essay, the nature of animal digestion, and sympathy of the stomach with other parts of the body, have been amply considered, as an introduction to the treatment and cure of diseases incident to a disordered state of the digestive organs; among the first of which, those prevailing maladies, loss of appetite, and indigestion, claim the first attention; for, whether they are simply idiopathic, and originally seated in the stomach itself, or symptomatically produced by a translation of gouty matter, profusion of bile, or other accessory causes, they will occasion chronic diseases, which cannot be effectually cured, till these complaints in the first passages, are previously taken away.

It would prevent many dangerous errors in medical practice if such diseases of the viscera as are simply organical or primary, were truly distinguished from others which are symptomatic, or secondary, and arise from a morbid state of the constitution; for, it is evident that they must all originate from one of these two causes; which, though perfectly dis-

tingent in their nature, have notwithstanding, been frequently confounded with each other, or slightly passed over, without discrimination, as maladies requiring nearly the same method of treatment.

I know it has been suggested by some authors, that the distinction here mentioned, is not absolutely necessary; because, as indigestion may be owing to want of tone in the general habit, and communicated to the stomach; so the tone of the stomach restored, may be returned to the habit.

This seems a vague and exceptionable opinion, and ought to be adopted with great reserve; for, it can only apply in cases, where the solids are simply affected; and not in diseases proceeding from a vitiated state of the fluids, which of all others are the most dangerous, and difficult of cure.

Indigestion arising from simple weakness or relaxation, cannot, with propriety, be treated in the same manner as when it proceeds from a distempered blood, and a translation of scrophulous, or other morbid matter to the Viscera. In the first case, the disease might be relieved by tonics, which brace the fibres, and give strength to the vascular system; but the last would require such medicines as tend to subdue and evacuate the morbid juices from the constitution: consequently, should tonics be directed in their stead, they would concentrate and lock up the offending matter, and probably destroy the patient: on the contrary, in the first case, the solid system, which was too weak before, would still become more relaxed and debilitated by a course of evacuating medicines.

By close attention to the morbid changes produced in the living body, and what will be hereafter advanced on the present subject; I think it will become apparent, that, few diseases of the stomach are originally local, or inherent in that part, as generally supposed; those only excepted, which are occasioned by intemperance, unwholesome diet, culinary poisons, or the abuse of strong drastic medicines; more particularly the immoderate use of mercury, where the injury is immediately impressed upon the stomach itself.

It appears still more evident, that local imbecility of the stomach, considered as simply such, is seldom the sole cause of its morbid affection; when we observe the instant loss of strength, appetite, and digestion, from any sudden shock of the mind, as the arrival of bad news, or other circumstances of poignant and deep distress; when it is no sooner struck by the impression, than it instantly becomes *atonic*.

In farther support of this opinion may be adduced the effects of sea-sickness, which, by mere motion disagreeably impressed upon the brain and nerves, and without any other previous change in the solids or fluids; at once deprives the stomach of its natural power, and produces intolerable sickness and vomiting, with universal loss of bodily strength.

Those two evident causes of morbid sympathetic affection, the one resulting from the body, the other from the mind, and where both are suddenly and manifestly produced, can be accounted for upon no other principle than nervous influence, from the want

of which, the stomach as well as the whole corporeal system are deprived of their natural energy.

Excessive *flatulence*, or immense quantities of air discharged from the stomach, in those of bad digestion, particularly after obstructed perspiration, or previous to a fit of the gout, though a common and very oppressive complaint, has not, as far as I know, been accounted for in a rational and satisfactory manner: this symptom is not void of danger, as generally supposed, being frequently the fore-runner of a tympanites, or dropsy, as I have in two or three instances observed. The air thus discharged, being much greater in quantity than what could possibly be contained in the aliment of the stomach, inclines me to think it may also proceed from another cause.

The human body has two sorts of vessels opening into all its cavities; the first pour out a fluid to moisten their contained parts, and are called *exhalents*; the other imbibe superfluous moisture, and are called *absorbents*.

Fluids injected into the alimentary tube by clysters, are soon so perfectly absorbed, that not the least part of them is afterwards evacuated; from which it may reasonably be concluded, that in cases of excessive flatulence, the air chiefly escapes from the orifices of the exhalent vessels; especially when rarefied by febrile heat, or set at liberty by a putrid dissolution of the blood.

It appears by experiment, that animals in the exhausted receiver of the air-pump, are sensibly relieved by voiding particles of air from the surface of their bodies. In order, therefore, to restore the ba-

lance between the external and internal air, so essential to the well being of all animals, it is extremely probable there is a free communication between them; and that, when the external air is light, a due quantity of internal air escapes through the cutaneous pores, lest it should burst its vessels, for want of sufficient counter-pressure: on the contrary, when the external air suddenly becomes heavy, part of it finds admission into the blood, by the lungs, to preserve a due balance; and lest the body, by sustaining too much external pressure, should be destroyed.

The property of discharging air from vegetables, and again absorbing it, has been demonstrated by experiment; and however new the opinion, if such it be, I see no reason why the same law of nature may not also obtain in animal bodies; for, if air was not discharged from the body, as well as admitted into it, the balance, between the internal and external air, could not be restored.

That air enters the blood in the *lungs, that it

* The Lungs are two delicate spongy bodies placed on each side the heart in the cavity of the breast: they are chiefly made up of *air-vessels*, and *blood-vessels*, intended by nature to answer the double purpose of respiration or breathing, and of mixing fresh *chyle* with the blood.

Before the act of respiration commences, as in the infant during its nine months abode in the womb, only a third part of its blood can circulate through the *compressed lungs*; but as soon as it is born, they are blown up with air, and then the whole mass passes freely through their numerous blood-vessels. Hence it follows, that whatever interrupts respiration, and hinders the free play of the lungs, will occasion an accumulation of blood in their substance, and dispose the patient to consumption, by creating *inflammation*, *ulceration*, or *spitting of blood*.

Although breathing, under certain circumstances, is not essential to life, because the infant before birth dispenses with the want of it; yet

combines with, and imparts to it a florid colour, is not matter of surmise or mere conjecture, but has lately been demonstrated in a satisfactory manner; and, in proportion to the purity of that fluid admitted into the blood, the countenance has been observed more or less *florid*; for, those of a pale and sickly aspect, from residing in the confined air of large, unwholesome cities, become fresh coloured and ruddy by removing into the country, where they breathe a more pure, dephlogisticated atmosphere.

Air, thus absorbed by the lungs, seems to be the vivifying principle which gives colour to the blood, as well as life and animation to the whole system, and is probably also the principal cause which preserves it from putrefaction; for, it has been proved, that pure air not only enters the blood by the act of inspiration, but that impure or *mephitic* air is discharged or expired: to which may be added, that contaminated vapour which escapes from the body with perspiration, urine, and stool, still farther tending to accomplish the great purpose of nature, in preventing that corruption of the blood and juices which otherwise must have happened. So that when we consider the vast quantity of vapour, or perspirable matter, continually breathed out by the lungs, we shall have less occasion to think the opinion of the antients exceptionable, who termed the lungs the chimney of the body.

being once begun, its continuance is absolutely necessary. Thus the heart and lungs unite their power, and labour with incessant and unwearied efforts to keep the human body alive; even sometimes for the tedious period of a hundred years.

Indeed it appears perfectly reasonable and consistent to suppose, that nothing passes into the animal body, but what, in due time, may pass out of it again; and thus, by a continual accession of new matter and the discharge of what was become useless, that renovation and purity of the blood is preserved, so necessary to its well being.

Whenever flatulence prevails in a very high degree, joined with loss of appetite and indigestion, there is reason to apprehend some morbid cause; either gouty matter prevails in the habit, putrid tendency in the blood, or there is defect in the natural secretions or excretions, which, suffered to continue, might endanger the constitution.

The medicine, from which I have observed the most immediate good effects, in such cases, is the camphorated mixture, with Hoffman's anodyne liquor, and tincture of opium (*vide appendix*); but the relief given in this manner is only temporary: to render it permanent, regard must be had to the causes of the disease already assigned.

It will be right, at all events, to keep the pores open, and the bowels gently laxative by the aloetic pill; lest the confined air expanded by heat, overstrain their fibres and produce a *tympanites*. If perspiration be obstructed, as it generally is, twenty drops of antimonial wine, added to each dose of the camphorated mixture, will always be found of service; and, even should the case be gouty, will contribute to the patient's relief.

Where putridity is supposed to prevail, the decoction of Peruvian bark with mineral acid; also spiced

claret, or port wine may be liberally administered as an antiseptic, to strengthen the solids, and confirm the texture of the blood.

That species of flatulence occasioned simply by effervescence, and the expansion of air in food at the stomach, may be much relieved by abstaining from fluids, and crude fermenting substances, especially such vegetables as largely contain it, of which kind are turnips, peas, beans, and other leguminous grain of the viscid, tenacious kind, leavened or fermented bread, &c., instead of which sea-biscuit may be used; and wine, as well as all fermented liquors, should be superseded by toast and water with a small portion of French brandy. The Peruvian bark with mineral acid, will lessen the tendency to fermentation at the stomach, and increase its tonic power.

Nothing will so much accelerate fermentation and increase flatulent swelling of the stomach, as air, and moisture put in motion by febrile *heat*, especially when the body is costive; therefore, those who are affected with that oppressive disorder, should endeavour to avoid this combination of causes by which it is chiefly produced.

From the preceding observations, on the distinction between *organical* diseases, and those which are *symptomatic*; the method of cure will become obvious; namely, to remove, if possible, the immediate cause locally impressed on the stomach; or those more remote, which universally affect the constitution; and which are communicated to it by *sympathy*, or the mediation of the nerves.

The first of those intentions is often as much in

the patient's power, as that of the most skilful physician; at least, without his concurrence and prudent caution, the best advice will little avail: but, in the last, when the blood is contaminated by a morbid cause, and the general habit affected; almost every thing depends upon the judicious administration of effectual remedies. In this and the following section, therefore, the nature, treatment and cure of those maladies will be more particularly specified and explained.

The stomach and bowels, being endowed with exquisite sensibility, are liable to many disorders from the very nature of their office, by intemperance or errors in diet; for, the aliment constantly passing through them may offend, either by its excess of quantity, or bad quality; the first will overstrain their fibres, and create pain and oppression; the last may wound or corrode their tender nervous lining, and occasion colic pains, inflammation, convulsions, a mortification, and sometimes death itself.

Indigestion is so frequent a malady in this country, particularly in great cities, that it may be deemed *endemic in Britain*; whose inhabitants, from its insular situation, are exposed to all the vicissitudes of heat and cold, moisture and dryness, in a short period of time. But it may also be owing to other adventitious causes common to all places, namely, to errors in diet; the unwholesome occupations of some; the sedentary life of others; and anxiety of mind attending the eager pursuits of business.

There is a kind of constitution in the mind as well as the body; nor can either sustain violence,

beyond a certain degree, without injury, according to the natural sensibility existing in the one or other: those moving in a high and public sphere of life, who are plagued with honours and persecuted with solicitations; who are obliged to dissemble their feelings and live as it were at variance with themselves; also experience in their health the bad consequence of disappointed ambition, and such vexations and vicissitudes as are inseparable from human affairs.

Loss of appetite and indigestion sometimes arise from relaxation or local imbecility of the stomach, and none are more subject to such complaints than those who lead a sedentary, monastic life, and are intemperate in eating and drinking. Under such circumstances the *ingesta* will be imperfectly subdued, and, the quantity taken into the body being more than equal to its consumption; a bloated, anasarcaous habit will ensue; particularly, as the natural excretions, for want of sufficient exercise, will be unduly performed: hence the solids being daily more distended by the weight of the redundant fluids; the balance, which ought to be preserved between those two powers, will be destroyed, and the body daily decline from its usual strength and vigour.

When the stomach is repeatedly overcharged with full meals of animal food, it will lose its natural tone by such frequent plenitude and over distension, and its contents being indigested, the chyle obtained from it will be crude, impure, and insufficiently elaborated. The several secretions being also unduly performed, a foundation will be laid for *chronic dis-*

eases, especially the gout and scurvy, a dropsy, and hypochondriacal disorders; so that one train of evils leads on to another; but if they are not the effect of a bad constitution but of that indiscretion which tends to make it so; their cure is not to be sought for in the use of medicines, but in moderation and temperance. Let the patient take less food and more exercise, and he will not want a physician.

From whatever cause the stomach is deprived of its natural, digestive faculty, it may be laid down as a general rule, that spare diet, and abstinence from solid, animal food, will afford relief. By such means, the patient will avoid the inconvenience of sleepiness, palpitations of the heart, flushings in the face, with hectic fever and other symptoms after eating, so oppressive to the weak and infirm. But there will be less occasion to enforce the necessity of such regimen, as the stomach is its own sufficient guide, and at such times, nauseates all animal substances.

The propriety of spare diet will appear more particularly necessary for such invalids, as they generally use less exercise, and perspire less than others. Their solids are also more lax, and consequently their digestion is weaker.

How far the *qualities* of aliment are of consequence to health, may be evidently seen in the most dreadful of all human calamities, a *famine*, which is frequently followed by the *plague*, from the extreme scarcity of wholesome food which then unfortunately happens.

As the animal juices are accumulated by nourishment and rest, and consumed by abstinence and

motion ; it is a circumstance of the highest importance, to proportion them duly, that a just and natural balance may be preserved between the solids and fluids.

Intemperance impairs the memory, destroys the distinct exercise of the reasoning faculties, and renders the mind less fit for study or deep meditation. When the quantity of food is too great, the vessels will be overloaded, and the body oppressed ; if too small, it will waste and decline ; so that either very high or low living will injure health ; but of the two extremes, the first is much more common and productive of greatest injury ; since many who live intemperately, are prematurely cut off by apoplexies, or other violent diseases ; and on the contrary, the several instances of *longevity* are chiefly to be found among those who live on spare and simple diet.

In fixing a standard for temperance, our own feelings, or even the customs of certain places, would be very insufficient guides ; we should rather observe in what degree of vigour and perfection, animal life is supported among the poor, who use simple fare, and live in a manner conformable to nature.

If many of the Irish, with only milk and potatoes for their food, perfectly exercise all the faculties of the body and mind ; and whole nations in the east subsist wholly on rice and vegetables, yet live long and healthy, it will thence appear, that in this country, we might subtract largely from our full animal diet with great advantages to the constitution.

The regimen of diet should not only be adapted to particular sexes, and ages, but also to the nature

of climate and degree of the patient's exercise : general rules must therefore have their particular exceptions, according to the different constitutions for which they were directed.

Vegetable food is less nourishing and more flatulent than that of the animal kind ; but it resists putrefaction, and is most proper during the summer months, especially for those of strong fibres, and scorbutic, bilious habits.

Quadrupeds living on flesh, are generally fierce in their nature, and the exhalation of their bodies is rank and offensive ; whereas animals feeding on herbage are much more gentle, their breath is sweet, and their excrement almost inodorous.

Hence it appears, that much animal food is unwholesome, especially towards autumn, in warm, moist weather, when the fluids tend to putrefaction ; for it will load the body with rancid humours, and taint the sweetness of the breath, render the several discharges more offensive, and dispose it to diseases of the putrid kind ; which may best be prevented or cured by vegetable, acescent diet, abstinence from fermented liquors, and the liberal use of pure water, with fresh orange-juice ; or a solution of the crystals of tartar, with lemon-juice, called imperial water.

How far the human constitution may be changed for the better by vegetable diet, is evident in those who have been cured of inveterate scurvies by the plentiful use of fresh vegetables and pure water without any other assistance ; and instances are not wanting, where even the irascible passions have been, in a great measure, subdued by the same means.

Areteus mentions the cure of *leprosy* by total abstinence from animal food, and the constant use of vegetables, in those afflicted with that loathsome disease; who, from fear of infection, had been abandoned by society, and driven out into a desert.—

He who means to be a rational epicure, and to exalt the pleasure of eating beyond the reach of a sensualist, should eat with simplicity, and moderation; for then only, he will taste with the palate of nature. If rich sauces and high seasoned dishes are grateful to some; they do not possess a natural appetite, but that which is depraved; for, children and young people disrelish all such aliment, and never grow fond of it, till their taste is vitiated by habit and bad example.

Thus, when the food and palate are both in their natural state, the relish is high, and the body duly nourished; but when, by the arts of compound cookery, the first is deprived of its soft, balmy quality, and rendered almost caustic by salt, cayenne pepper, and other high seasoning; they stimulate the languid appetite, turn round the wheels of life too rapidly, and wear out the body before its time. Whereas, those who abstain from much wine, spirituous liquors, or hot spicy aliment, acquire an exquisite degree of delicacy in the sense of tasting; their spirits are more equal, their feelings more pleasurable, and in general they are much longer lived.

If the qualities which things naturally possess are right, and good in themselves, those communicated to them by the too officious hand of art, must surely be wrong. The cool, refreshing melon, a native of

scorching climates, intended to quench thirst, and abate heat, is often robbed of its genuine properties, by a profusion of pepper; and acid fruits, which would strengthen the stomach, and resist animal putrefaction, are lost in the taste of sugar.

Thus the beneficent simplicity of nature is superseded by *custom*, which luxury, not propriety, has introduced; for it must be confessed with regret, that in the affairs of human life, many are more guided by their passions, and the example of others, than by reason, or their own understanding.—The good effects of temperance are acknowledged by all, but duly regarded by few.—

The state and condition of the stomach may best be known, from the appearance of the tongue; for, both are invested with the same fine mucous membrane; so that when the last is fresh, florid and moist; appetite and digestion remain unimpaired; but, on the contrary, when the tongue becomes dry, discoloured, and coated with mucus, attended with thirst, and a feverish breath; the stomach, as well as the lungs are then disordered.

As loss of appetite is usually attended with nausea or loathing of food; so indigestion is accompanied with flatulence and oppression, a bitter and disagreeable, rancid taste in the mouth partaking of the food; sour eructation with heartburn, flushing in the face; and a slow hectic fever.

In those of weak appetite and bad digestion, who live chiefly on vegetable diet; a redundant acid at the stomach frequently prevails, with excessive flatulence, cardialgia or heartburn. To remedy this in-

convenience, it will be proper for the patient to increase the quantity of animal food, and to indulge moderately with things of a warm, alkalescent nature, such as horse-radish, mustard &c. Instead of wine or malt-liquors; pure water, with a small portion of brandy, without sugar, will be less apt to ferment and occasion wind. This regimen, however, should be pursued with caution; for, a total abstinence from vegetables, and the too liberal use of animal food, would dispose the fluids to a dangerous state of putrefaction; therefore, the most wholesome diet will be found in a due proportion of animal and vegetable substances which may be varied occasionally, according to the nature of circumstances.

A moderate quantity of salt, taken with our food, seems necessary to promote digestion; for, although, according to experiments which have been made, one dram of salt in two ounces of water preserved flesh sweet twenty hours longer than pure water; it has been found, that flesh, with from five to ten grains of sea salt, putrefied sooner than the same quantity infused in water only; consequently, as salt is never taken with food, beyond the corrupting quantity mentioned in the experiments; it appears necessary to digestion; for then, it manifestly acts by its *septic* power, and will hasten the dissolution of animal substances.

A fresh supply of food, before the last meal is evacuated from the stomach, or whilst any of its indigested sour leaven there remains, is highly pernicious; since it would soon excite fermentation in the

next aliment and convert it into its own acid nature, creating flatulence and heartburn.

There are three articles by which the stomach and bowels may be materially affected, namely, tea, coffee, and tobacco; the properties of which I shall therefore consider, especially the two first, as they make a considerable part of our daily sustenance.

About a century ago, *Bentikoe*, a Dutch physician, bestowed extravagant encomiums on the use of tea, but like a true medical enthusiast, he erred in the extreme; for with him, it was good for every thing, although daily experience shews it pernicious to people of lax solids and weak nerves. The internal tremor which it often occasions, especially gunpowder tea, and the high-flavoured green; with its remarkable effect of preventing sleep, shew that it makes some peculiar impression on the nervous system, by its *fragrant odour*, in which its pernicious quality seems to reside, for, when that is dissipated by a boiling heat, no such effect is found to follow.

For this reason, probably, the Chinese prefer a decoction to an infusion of tea; and that they avoid its use till it has been kept one year. We are informed, that, in its recent state, it is endowed with a narcotic or intoxicating quality. This is verified by the experience of those who are employed in mixing large quantities of tea, in close rooms, where the air is confined; being often seized with faintness, giddiness, and headache.

Boerhaave and some others, supposed that the bad effects of green tea were owing to its having been dried on hot plates of copper; for, as all metals,

heated to a certain degree, throw off their metallic effluvia, it was reasonable to suppose, *tea*, thus manufactured, would be strongly impregnated with copper, the effects of which are known to be highly pernicious to the human body. Some even went so far as to imagine its fine colour was occasioned by *verdigrise*, a preparation from copper; but, by experiments made on fine bloom teas with *volatile alkali*, not the least sign of such poisonous adulteration appeared.

All nervous disorders are certainly aggravated by the use of tea; and it is equally unfit for children and those of lax fibres, especially the first, whose fluids bear a much larger proportion to the solids of the body than in adults, for whom it is more proper; especially those of a warm, sanguineous temperament. Green tea is mildly astringent, by which the relaxing power of warm water is corrected; consequently, weak tea drunk too hot, will enervate; and, if very strong, it may prove equally pernicious by affecting the head or stomach.

There are some apparent inconsistencies advanced by authors who have written on this subject: by one we are told, that green tea is mildly astringent; by another that it is relaxing. Some say it is narcotic, and procures sleep; others contend, that, taken before bed-time, it assuredly prevents it. This last effect I think may be accounted for; since I have frequently observed very small doses of opium act in the same manner; neither can it appear strange that the same thing should operate differently upon

different bodies, as their nerves are strung to different sensations.

Upon the whole, *tea*, like other things, derives its value from its proper use, and is good or bad according to the state and condition of the patient's constitution; and, to determine this, he should rather consult the feelings of his stomach, than the opinion of a physician; for that will best inform him, whether it be right to take it, or let it alone.

When it is drank in moderation and not too warm, with a large addition of milk, and little sugar, I believe, it will seldom prove hurtful; but, on the contrary, *salutary*: after study or fatigue, it is a most refreshing, and grateful repast; it quenches thirst, and cheers the spirits, without heating the blood; and, the pleasing society, in which we so often partake of it, is no inconsiderable addition to its value; for, whatever affords rational pleasure to the mind, will always contribute to bodily health.

Coffee is the fruit or berry of a small ever-green tree, growing spontaneously in Arabia, but is now cultivated in the East and West Indies: the first sort is the best, and may be distinguished from the other, being smaller, and of a darker, yellow colour. The flower is exquisitely fragrant, like that of the Arabian jessamine, of which it seems a species, and the fruit is like a cherry including the berry in a pulpy substance.

The opinion of a late author, that coffee and tea are of the same quality, has no just foundation; being not a little dissimilar in their nature and effects.

In those of lax fibres and cold phlegmatic consti-

tutions, coffee will certainly be found more beneficial than tea, being more warm and aromatic. It strengthens the stomach, assists digestion, and being grateful to the brain and nerves, is therefore called *cephalic*; but, on the contrary, with such as are of a dry, sanguineous habit of body, it is less proper: being usually taken in smaller quantities than tea, it does not like that relax the solids, dilute the fluids, or promote perspiration and urine; but excites thirst, heats the blood, and renders the body costive. So great and essential is the difference between coffee and tea, of which daily experience, from our own feelings, affords the most ample testimony.

The prejudices however, of *Simon Pauli*, against the use of coffee, are not more to be regarded than his erroneous opinion of tea; for, he strenuously contended, that this oriental vegetable was precisely of the same species as the *myrtus brabantica*, indigenous in Brabant, and by some called Dutch myrtle.

We are next to specify the qualities of that *narcotic weed tobacco*, originally used by the Indian savages in smoking, to procure sleep, and abate the sense of toil. We are informed, that the Indian priests used the fumes of tobacco until they became intoxicated, and as it were in an extasy. The Indians poison their arrows with the oil of tobacco which infused into a fresh wound, occasions sickness and vomiting, or convulsions and death.

We have been told, that tobacco when chewed, is a preservative against hunger; but, this is a vulgar error; for, in reality, it may more properly be said to destroy appetite by the profuse discharge of saliva,

which has already been considered as a powerful dissolving fluid essential both to appetite and digestion.

In smoking, the fumes of tobacco induce a kind of pleasing insensibility not easily described. Its narcotic odour, thus administered, equally infatuates the ignorant savage and the intelligent philosopher; but by the large expense of saliva thereby occasioned, it is productive of many disorders of the head and stomach, particularly the last.

In describing the qualities of saliva and bile, I remarked, that these fluids have been experimentally found to correct acidity in the stomach and to retard fermentation; consequently, they prevent cardialgia or heartburn, and flatulency. If therefore a certain quantity of saliva be necessary to increase appetite and promote digestion, surely, the want of it must be detrimental to both.

Many years ago Dr. Robinson published a pamphlet whimsically entitled a treatise on the virtues of a *crust of bread*; but with more propriety he might have called it a treatise on the nature and qualities of saliva; for, in it he has satisfactorily proved, that the large quantity of that *saponaceous, dissolving menstruum* secreted in the mouth, by chewing a hard crust of bread before dinner, and swallowed into the stomach, will certainly create appetite and promote digestion. The diminution of those faculties, are not the only injuries brought on by smoking tobacco; its narcotic fumes will stupify the brain, and deaden the invigorating power of the nerves upon the whole bodily system.

From these preceding facts, this practical inference

will follow, namely, that the injury sustained by the use of tobacco, will always be proportionate to the loss of saliva, and its narcotic power upon the nerves; consequently, chewing this vegetable, as it is the most sordid, so it is the most injurious method of using it; for, by its pungency in the mouth, much saliva will be secreted, part of which will be rejected by spitting, and the rest, strongly impregnated with its pernicious qualities, will be swallowed into the stomach; where, like all other narcotics, it will impair the tone and suspend the digestive power of that organ. But as this custom chiefly prevails among the vulgar, upon whom friendly admonitions are too frequently thrown away; I shall say little more on the subject; well knowing the great difficulty of eradicating prejudice from ignorant minds, though a circumstance much to be regretted.

Tobacco smoke will kill flies, and other insects; and when applied to a naked nerve in the tooth-ache, though it also acts by its pungency, chiefly removes pain by its narcotic power.

The desire of tobacco, in those accustomed to it, is so insuperable, that rather than forego its use, they would part with half their food. Their propensity to it is equally prevalent with that of dram drinkers to spirituous liquors, without which, however pernicious, they become languid and debilitated, and are affected with nervous tremor.

To adopt what is pleasurable to our feelings, or subservient to use, cannot be thought strange; but, that a rank weed, at first hateful to the taste, and hurtful to the constitution, should, by habit become

desirable, and universally prevail throughout Europe, is a circumstance the most extraordinary, affording one striking instance among many, of the folly and infatuation of the human mind ; and the force and prevalence of custom opposed to sense and nature.

Indeed, there is nothing so completely absurd, to which fashion will not lend its temporary sanction, and stamp with the idea of excellence. Was this Proteus like being only regulated by elegance, or utility, it might be worth imitation ; but often it is unconnected with either, and ever capriciously shifting from one extreme to another. It prevails for a time with *epidemic rage*, and governs both the rich and poor ; 'tis nevertheless a phantom,—the idol of fools ! a creature of to-day and to-morrow, having no permanent existence, and seldom any value, but what it accidentally borrows from time and place : the weak minded obsequiously follow its fantastic extremes, and worship it as their chiefest good ; but those who distinguish better, adopt it with moderation, to avoid the inconvenience of being singular.

But, of all the evils which exert their baneful influence over the stomach, none is so pernicious in its consequences, as the use of *drams*. Like *liquid fire*, they will harden and contract its fibres, and as it were cauterize and crisp up, its tender, nervous lining, at once destroying both feeling and appetite.

For this reason, those addicted to the pernicious habit of dram-drinking, are always complaining of a *cold stomach*, which, in fact, is rendered such by the very means they preposterously make use of, to re-

lieve it, and constantly repeat, to the slow, but sure destruction of their constitution.

Besides those bad effects of spirituous liquors, they harden animal food, and render it indigestible. From the same heating power, they contract the glands, coagulate their juices, and rob the stomach of that natural moisture which is essentially necessary to digestion.

By such means, the mental faculties as well as those of the body, are injured and impaired; for those who debase themselves by this sordid gratification, are constantly troubled with sickness at stomach, and sinking of spirits, a stupor, confusion of ideas, loss of memory, and nervous tremor: the finer feelings are thus insensibly weakened and subdued; every moral virtue loses its power, every relative duty is neglected, or forgotten; and at last, so great are the inroads of this destructive habit upon the mind, that with it, *every vice may enter*.

As scarcely one can be found who has been reformed of this pernicious custom, how cautiously ought it to be avoided? spirituous liquors, though pleasing to the taste, in their final effect, will be found more bitter than gall! they will prey on the vitals, and like the fascinating *cup of Circe*, transform the human shape.

In those who have died from the abuse of spirituous liquors; the liver, spleen, and abdominal viscera in general were found preternaturally hardened, and rendered as it were *coriaceous*, like leather. Excessive dram-drinkers are prematurely

cut off by consumptions, dropsy, asthma, or apoplexy.*

As many diseases of the stomach and bowels originate from obscure and unsuspected causes, so they are frequently overlooked, or imputed to some fault of the constitution; such are those proceeding from culinary poisons; the adulteration of aliment, or the abuse of drastic, violent medicines; and, indeed, considering the innumerable and invisible avenues to the approach of diseases and death; with the infinite number and complex structure of those parts which form the human body; instead of sometimes extending our existence to a hundred years, it is matter of astonishment, that we continue to survive beyond the short period of a single day.

Copper vessels have been attended with so many fatal consequences in the preparation of food, that none but those made of *iron* should be used.

Copper is easily dissolved by acids, and, from its solution, that poisonous substance called verdigrease, is produced. Vinegar and salt, things in common

* Human bodies, like particular edifices, are formed to endure a longer, or shorter time according to their manner of construction, and the materials of which they are made up: in some, the organs are naturally firm and strong, in others, they are composed of *perishable stamina* derived from the parent, and therefore liable to wear out, before the usual period of life is completed.

Agreeable to this observation, I have often remarked from the *public papers*, as well as those solemn monitors the *tomb stones*, that many of the same name and family were carried off nearly in the same term of years; and I have no doubt, but the correspondence would still have been more exact, was not the duration of human life lengthened or shortened, from temperance, excess, or other accidental circumstances inseparable from each individual.

use with our food, also strongly corrode it; and as all metals acted upon by fire, largely throw off their *effluvia*; from both these causes, a considerable quantity of *cupreous poison*, of the most dangerous and subtle kind, may thus impregnate the aliment during its preparation, which being taken into the body, and as it were transfused through the blood, will pervade the vascular system and have the same slow and baneful effect, as that said to be produced by *Indian poison*, viz. the patient will gradually waste and decline; and there is reason to believe, that the frequencies of palsies, nervous disorders, and complaints of the stomach, are in part owing to this, and such like causes.

Five Monastics out of thirteen, upon the continent, who eat soup prepared in an unclean copper vessel, several years ago, after suffering the most excruciating pain in the stomach and bowels, died by the effect of the cupreous poison. The melancholy accident which happened to several gentlemen who dined at the inn at Salt Hill, though supposed to arise from adulteration of their wine, was probably owing to the same cause. Some of them were suddenly taken ill and died soon after; others, who survived for a time, were affected with pain in the bowels, and at last carried off by lingering illness.

The common earthenware in constant use, and not suspected of any bad consequence, becomes pernicious, when it contains acids, which is frequently the case in pickling &c., being glazed with lead, another mortal poison; for, though it appears to have a fine glassy surface, this thin covering may easily

be dissolved by hot, acid liquors, such as vinegar, or lemon juice. From these, the salt or sugar of *lead* may afterwards be obtained, which taken inwardly in any considerable quantity, has been found to produce spasms, and excruciating pains of the stomach, with costiveness and contraction of the bowels.

China, or Staffordshire ware, are most proper for all those pickles and preserves, in which vinegar or other acids are principal ingredients.

Mushrooms, and the *lauro-cerasus* or common laurel, with berries like a black cherry, have been deemed noxious, though often used in food; the first in ketchups and ragouts, and the leaves or distilled water of the last, to give a high flavour to custards, creams &c. Taken in moderation, mushrooms will seldom prove injurious; but laurel water, according to experiments which have been made, is perhaps the most subtle and insidious poison in nature; for it seems immediately to extinguish the vital principle, and suddenly destroys without pain, or other previous signs of its mortal effects.

The adulteration of bread, beer, and wine, a grievance long and justly complained of, is another source of morbid affection in the human body, which has been fatal to some, and prejudicial to thousands.

As the rational practice of physic redounds to the public good, so nothing can be more dangerous, or destructive to health, and even life itself, than the *abuse of medicines*, especially those of the powerful kind. This observation is every day verified by the injudicious use of *mercury*, in particular, from which

many constitutions have suffered more than by the very disease it was intended to cure.

The preposterous use of strong emetics and cathartics; the long continued use of opiates, and of warm stimulating bitters; the unseasonable use of the cold bath, and profuse loss of blood by the lancet, have all had their share in aggravating some diseases, and producing others, especially those of the stomach and bowels.



SECTION V.

Of Symptomatic or Secondary Diseases of the Stomach.

If the distinction between primary and secondary diseases of the stomach in this and the preceding section, be not critically just, it will at least afford the reader such a competent idea of their difference, as may be useful; and indeed, so great is the difficulty of tracing effects to their source, that what is supposed the original, or proximate cause of certain diseases, is often secondary, or the effect of some other cause too remote for human discovery. In this essay, having nothing so much in view as utility, I have been less attentive to nice distinctions or systematic arrangement.

Scrophulous, scorbutic, or other morbid matter, by falling on the viscera, will interrupt, or destroy their natural functions, and produce symptoms of great violence, which, by long continuance, always injure health, and endanger the patient's life. To such affections, may be added others of the like symptomatic kind, proceeding from irregular gout, redundant bile, or violent passions of the mind, all which diminish the energy of the visceral organs, which cannot be restored until those morbid causes are removed, which thus contaminate the blood.

It is not here necessary to enter into a minute discussion respecting the difference of opinion whether

the causes of chronic diseases are seated in the solids, or fluids of the animal body ; but it may be proper to remark, that those causes when duly examined, are not so remote from each other, as they at first appear from a superficial view.

In infancy and youth, during bodily growth, the fluids are converted into solids ; and in more advanced age, there is a constant supply of juices, sent to the solids, for their renovation and repair ; consequently, diseases originally existing in the fluids, will at length be transmitted to the solids, and completely disseminated through their several parts : therefore whether medicinal substances act on the one or other, or on both, it does not seem necessary to determine ; since, either way, their effect may prove salutary.

The *scrophula* is a disease of the lymphatic glands, confessedly hereditary, as may be proved from innumerable, and incontestible instances ; but it may also be acquired, and is most frequent in young subjects of fair complexions, and lax solids.

Some authors have supposed that the proximate cause of this disease arises from a vitiated conformation of the lymphatic system ; but others, with more apparent reason, imagine it proceeds from a particular species of acrimony existing in the blood, and diffused through the lymphatic system.

The last opinion appears the most probable and consistent ; because, the disease is found to prevail most in infancy and youth, when the quantity of fluids is largest in proportion to the rest of the body ; and abates in more advanced age, when those fluids

gradually become less, and the solids more firm, about the age of puberty in both sexes; and therefore, this is the proper season to assist the efforts of nature, by the power of art, or in other words, to administer medicines to the best advantage.

But, although the scrophula is generally hereditary, it may also be adventitious, from all such causes as weaken the bodily habit: consequently, children badly nursed or improperly fed, or who from preceding illness, are unable to use sufficient exercise, are of all others, the most liable to this chronic weakness.

After the small pox, measles, or hooping cough, especially when those acute diseases have been terminated by an *imperfect crisis*; children are extremely apt to become ricketty, or affected with scrophulous symptoms, which then, if duly attended to, would generally admit of cure.

The same soft spongy habit of body disposes it to rickets and scrophula. The last is often the effect of the first; but, even when the scrophula is hereditary, a ricketty disposition may prove the exciting cause, and anticipate the disease.

I have indeed observed that the two maladies are frequently complicated, and their morbid appearances after death nearly the same; for, in both, the mesenteric glands have been found inflamed, enlarged, and ulcerated; and the lungs affected with inflammation and tubercles; particularly in scrophula, which if not removed in the beginning, often unfortunately produce an incurable pulmonary consumption; or universal wasting of the body called *marasmus*.

A decoction of *taraxacum* (dandelion root) or of

Sarsaparilla (vide appendix) may be given two or three times a day ; lixiviated whey, with honey ; and also the whites of fresh eggs may be taken with good effect, if continued for a long time ; but a more powerful deobstruent may be found in very small portions of crude *mercury* minutely divided as in the blue pill, of which, five grains may be taken every second night, at bed-time, and the same dose, at such intervals, may be continued for a fortnight, or three weeks. A vegetable regimen of ripe fruits, and such roots as abound with a saponaceous quality, will be proper, as endive, lettuce &c. In the conclusion, Peruvian bark, to an infusion of which the neutral salts may be added, will be necessary to strengthen the habit ; and where the lungs and viscera are sound, sea bathing, which is a remedy of great efficacy.

Whoever doubts the efficacy of such *vegetable* alteratives, from their want of gravity, with which mercury is endowed, need only attend to a curious experiment to remove such groundless surmises : namely, the bones of animals who have for some time eaten their food with a mixture of madder root, acquire a florid, red colour, even in their most solid and compact parts : this circumstance is remarked by the late professor *Monro*, in the following manner. “ The clearest demonstration of the intimate “ distribution of small arteries, is to observe the effect “ of such a tinging substance, as can retain its colour, “ when swallowed, digested, and mixed with the “ blood of any living animal, and at the same time “ has particles small enough to be conveyed into the

“ vessels of the bones; such is *rubia tinctorum*, made from the root; for we see the gradual advances which this tincture makes from the periosteum into the more internal parts of the bones, and how universally the distribution of liquors is made, the whole bony substance being tinged.”

Hence it is evident that all parts of the body, even the bones themselves, abound with vessels infinitely small, and are pervious to the subtle particles of medicinal substances, which, with the blood strongly impregnated by their virtues, may be transmitted to the diseased parts, in such manner as to effect a perfect cure, without injury to the constitution.

The cause of gout and scrophula has long been supposed to reside in the blood and juices; but of late, this opinion has by some few, been set aside, and another adopted; namely, that it originates from vitiated *stamina*, and not from a morbid state of the fluids.

In support of this new theory, we are told, that the scrophula is not an infectious disease; its morbid matter not being exhaled by perspirable fluid on the surface of the body, a presumption, that it did not reside in the fluids, but in the solid system.

It has also been asserted, that there is no proof of morbid matter in the fluids being the cause of gout; or that such cause is always present in the constitution.

That the cause of gout is always present in the constitution, is incontestibly proved from the following well known fact; namely, that hereditary gout

is transmitted from the father to his offspring, and thence to succeeding generations.

But although the cause of those diseases should exist in the solids; seeing that the different qualities of our fluids chiefly depend on the peculiar dispositions of their strainers, they would thence, like the solids, soon become vitiated, and concur with the former cause in aggravating the disease; as I have observed, that the fluids of the body are constantly converted into solids.

But general, and accurate observations, established upon repeated, practical facts, need little argument for their support, when opposed to specious conjectures, and surmises resting upon individual authority: the sudden relief produced by *critical eruptions*, and the bad consequences of repelling them; the copious sediment in the urine of *arthritics*, and the chalk-stones frequently deposited in their joints, all incontestibly prove, that the gouty matter, whatever it is, resides in the fluids and not in the solids of the body. Respecting the *scrophula*, the enlargement and ulceration of the glands, the discharge of sharp, corroding humour from the sores, attended with inflammation of the eyes, and excoriation of the cheeks, clearly indicate the existence of acrimony in the blood and juices, and are so many effects of that evident cause.

The limits of this essay will not permit me to enter into a minute discussion of the various opinions which have prevailed respecting the cause or essence of gout; it will only be necessary to speak of the disease in its irregular state, which happens more frequently than that terminated by regular fits; and

when severe, is attended with much greater danger; for, instead of fixing like the former, upon the extremities of the body, it often retreats to the vital parts, particularly, the stomach and bowels, where, if neglected, or improperly treated, it frequently becomes fatal. However, before I proceed to lay down rules and cautions for the observance of those who are subject to this *irregular* malady; if I may hazard a conjecture, the most probable cause of gout seems to be, the retention of rigid, earthy particles taken into the body with aliment, which it is sometimes unable either to expel by the excretions, or subdue by its circulating power.

The asperity of those particles may easily be conceived to occasion exquisite pain, by vellicating and wounding the tender solids where they are deposited. When collected in the joints of *arthritics*, in form of chalk-stones, they appear to be of the same nature with those found in the bladder; so that a disposition to form gravel in the kidneys, seems nearly allied to a gouty constitution; for gouty patients, in the decline of life, are observed to be extremely subject to the stone and gravel.

Water contains a considerable quantity of this sabulous, earthy matter, as appears by the stony incrustation adhering to the inside of old water pipes, tea-kettles, and other utensils long used in boiling water.

Most wines abound with tartar, difficult of solution in water; but whether this saline concrete taken into the human body, and there remaining unaltered by its assimilating power, be the cause of gout,

as many have supposed, it is not easy to determine; although the fact is certain, that those addicted to the immoderate use of wine, are of all others most subject to that disease; and, on the contrary, others who have confined themselves to water drinking, or malt liquors, are seldom affected with it.

Cyprianus, the celebrated lithotomist, asserts, that among many hundreds he had cut for the stone in the bladder, he never met with one who had constantly drank ale or beer; and indeed, such as abstain from wine, and drink those liquors, are seldom afflicted with gout.

The irregular or anomalous gout diffused over the habit, by some also called *atonic, suspended, or internal gout*, is difficult to be distinguished from other diseases, as it often resembles those peculiar to certain parts of the body; but of all others, it is most apt to visit the *stomach* and *viscera*, where it occasions loss of appetite, indigestion, with excessive flatulence, and sometimes vomiting; also colic pains, diarrhoea, and profusion of bile. When it attacks the head, it is attended with pain, giddiness, loss of memory, and even apoplexy, especially in the decline of life. If it falls upon the lungs, it produces difficulty of breathing resembling asthma; if on the brain and nerves, it is followed by dejection of spirits, or melancholy.

Those who are subject to gout, whether regular, or irregular, are commonly visited by it in the autumn, or spring which is the more favourable season; for, that being succeeded by a warm summer,

which opens the pores, and allows the gouty matter to transpire, the disease is rendered less violent.

When the powers of nature languish, and are either insufficient to produce a regular fit, or where, from the effect of age, there is not strength of constitution to throw gouty matter upon the extremities of the body; then there is great danger of its retreating to the internal, vital parts, where it produces nausea and sickness, loss of strength, attended with darting pains, uncommon tenderness of the feet, and irksome, unpleasurable feelings; the patient is low spirited, peevish, impatient, and disturbed by the most trifling, accidental causes.

In this situation he is also frequently troubled with the arthritic colic or gouty twinges in the bowels; sometimes with weight and oppression of the breast; particularly, after anxiety of mind, or exposing his body to easterly winds, or night air. Such symptoms of irregular gout are always attended with great danger; especially, in broken constitutions which have suffered from intemperance or other causes.

This gouty affection of the bowels is often attended with a diarrhoea, which, if moderate and succeeded by abatement of pain, with a return of appetite, and natural rest, is a critical discharge, and ought not to be stopped. On the contrary, where the symptoms are violent, with pain, sickness and bilious vomiting accompanied by fever; opiates, aromatics, and cordials should immediately be administered, or the disease may put a period to the patient's life. A strong infusion of *mint* in warm port wine will be proper; aromatic fomentations should be applied

to the stomach, and warm opiate clysters injected; but above all things, the camphorated mixture with tincture of opium should be liberally administered.

The *arthritic vertigo* or swimming in the head, with which the stomach holds sympathy, is equally dangerous, and one of the most alarming symptoms of irregular gout; for, if it is not speedily relieved by proper means, or by a regular fit, it frequently terminates fatally in *apoplexy*. The following symptoms denote this dangerous malady: the face is turgid, and of a more livid hue than usual; the eyes are blood-shot, the tongue falters, the memory fails, the steps are unequal and staggering; and the patient cannot hold down his head, or quickly turn round, without the danger of falling on the ground.

In irregular gout, the intention of cure will be, to expel the gouty matter from the internal vital parts, and to invigorate and fortify the stomach and bowels in particular. For this purpose, the camphorated mixture, with the addition of Hoffman's anodyne liquor, and occasionally the tincture of opium and antimonial wine, are superior to all other medicines, and properly directed, will, in a manner, render the rest unnecessary.

Where the stomach becomes torpid and insensible, from a gouty attack, and affected with symptoms of great violence; warm Madeira wine, or the spirit of sal-volatile in ginger or pimento tea will be proper. Bottles of warm water wrapped in flannel, should be put to the soles of the feet, and carded wool, or fleecy hosiery applied warm to the pit of the stomach and abdomen.

In such urgent cases, I have directed the following medicine, and frequently with very speedy and extraordinary relief to the patient:

Take of the camphorated mixture of the London Dispensatory, eight ounces, Hoffman's anodyne liquor, two drams, tincture of opium one dram.

This mixture may be taken in the quantity of a tea cup full, every three or four hours, or as often as the nature of the symptoms require; it will warm and invigorate the nerves of the stomach, expel wind, and abate pain.

If the body be costive, ten grains of turkey rhubarb in powder may be occasionally given, with half a dram of aromatic confection, till it gently opens the bowels; and when the stomach is greatly oppressed with bile, flatulence, or a load of crude humours; an infusion of horse-raddish or mustard-seed may be drunk copiously, till the stomach rejects it and is thoroughly cleansed.

When cramps or spasms affect the legs, or should an inflammatory swelling on the feet supervene the symptoms of irregular gout, with abatement of the disease; it is a good sign, and foretels a favourable event. It will then be proper to invite the gouty matter to the extremities by putting the feet in warm water, which will relax the skin and open the pores. If the inflamed part is attended with much pain, or a considerable degree of fever; leeches may be applied; the camphorated mixture, with the addition of manna, may be occasionally taken, to render the body laxative; and the patient should

be kept in a gentle perspiration, by remaining still and quiet in bed, leaving the rest to nature.

Whatever causes weaken the vital powers of the body, or suspend its natural secretions, or excretions, will subject the patient to this fluctuating disease ; and therefore, it is often the consequence of long continued chronic ailments, anxiety of mind, or much bodily fatigue ; intense study, intemperance, or a sedentary life.

Studious persons, who are usually inactive, by too much rest of the body, and intense exercise of mind, become weak, enervated, and hypochondriacal : the stomach loses its digestive faculty, and the head is afflicted with a giddiness and stupor. By the sedentary state of the body, compression of the viscera, and want of perspiration ; many disorders of the stomach and bowels are brought on. The secretion of bile in the liver is thus prevented, and its passage into the intestines retarded ; whence proceed costiveness, and piles ; the formation of calculous concretions or gallstones.

Those in particular, employed in counting houses, contract the pernicious habit of resting the weight of their breast against a table or writing desk, the body being at the same time half double. This external violence, with the impure air they breathe in such confined places, has in a thousand instances, been the evident cause of *consumption, and visce-

* Our climate in Britain, from its situation as an *Island*, is extremely unfavourable to *consumptive* habits. The quick transitions from heat to cold, and sudden changes in the temperature of air, as to its moisture

ral diseases, especially of the lungs, the stomach, and liver, which no medicine could remove, whilst their cause continued, and which therefore have frequently had a fatal termination.

Weak sedentary people have generally a slender appetite, and bad digestion, attended with flatulence, hectic heats, and nervous affections; and on the contrary, when bodily strength is good, so are appetite and digestion: the circulation of blood is then brisk and free, the spirits lively, and all the natural discharges being regular, no gross humours or unsound juices are retained to injure the constitution.

These things premised, it is evident, that such as mean to remain free from chronic diseases, should avoid, as much as possible, the general causes which destroy appetite, and weaken the digestive power

and dryness, are not to be endured by delicate constitutions without very sensible injury.


Cold, moist air which generally prevails in this country during autumn and winter, is extremely pernicious to such as have tender lungs: in those inclement seasons blood will be repelled from the bodily surface, to the weak internal parts; the cutaneous pores become obstructed, and that perspirable fluid which ought to pass off, being turned upon the throat and lungs, will there produce defluxion of rheum, attended with hoarseness, tickling cough, or oppression at the breast, and at last, ulceration and spitting of blood.

Under such symptoms the patient is said to have got cold, which being too generally neglected as a disorder of little consequence, often, lays the foundation of a *consumption*, particularly in the winter season.

The best means of counteracting the severity of our own climate may be expected from all such causes as gently promote a free distribution of blood to the bodily surface; the most effectual of which are moderate exercise, wearing flannels next the skin and the frequent use of the flesh brush.

of the stomach where the first foundation is laid. Whatever remedies have been found most effectual in repairing the constitution, and increasing bodily strength, such will always most powerfully and permanently assist digestion; consequently, cool, dry, pure air, and moderate exercise, are the best of all stomachics: they will increase animal heat, and promote that circulation of the blood which regulates and supports the several secretions and excretions, upon which the health and well being of the body entirely depend.

The great difference experienced by invalids, in their strength, spirits, and appetite, when they use exercise, in a bracing, frosty air; compared with that sickly languor which they feel in warm, damp weather, when they indolently sit still in their chambers, and breathe a confined, inelastic air, will sufficiently prove the truth of this assertion; for, although Peruvian bark, steel, bitters, and the cold bath, are all excellent remedies when properly directed; their effects will be greatly increased, and their efficacy rendered much more permanent, by the assistance of those natural benefits.



SECTION VI.

Of Morbid Affections of the Liver.

The following observations are chiefly confined to chronic diseases of the liver, which are much more frequent, in this climate, than those of the *acute kind*.

Diseases of the liver are often the consequence of intemperance, and excessive heat, joined to moisture; and therefore, are most common in the East Indies, and other hot climates, especially after the monsoons, or rainy seasons. In this country, however, those of a bilious habit, who are addicted to the immoderate use of spirituous liquors, which may be justly named hepatic poisons, are likewise subject to diseases of this organ: also, such as reside in low, unhealthy situations, during the damp, autumnal seasons; more especially, if they are inactive and labour under anxiety of mind.

As a minute description of the liver would not only be unnecessary, but imperfectly understood by the generality of readers, it can only be requisite to afford a competent idea of its structure and use.

The liver appears to be the most complex organ in the human system, being composed of a pulpy, tender substance, and a congeries of various vessels of different orders; chiefly, for the purpose of preparing bile, and transmitting it into the intestinal canal; although, by the Antients, it was erroneously supposed the principal organ of sanguification.

It may be considered as a large gland consisting of two lobes, the largest of which is situated on the right side, above the short ribs, immediately under the arch of the diaphragm, a part which divides the breast from the belly; and its small lobe on the left, above the stomach, upon which a part of it lies in contract, and is extended.

The liver chiefly receives its blood by a large vein named *vena portarum*; and that its distribution may be better understood, it may be compared to a shrub, or small tree, having its trunk in the centre, its branches in the circumference of the liver, and its root in the whole abdominal viscera, from all which it brings reflux blood, for the secretion of bile, the use of which has been already specified in the first section.

It is here necessary to remark a certain peculiarity in the distribution of its blood vessels; for, instead of receiving blood by an artery, that fluid is sent to the liver by a vein, as already mentioned; so that the *order of circulation* is here inverted, for purposes agreeable to the intention of nature, but which, it is not necessary to enlarge upon, because it could not be useful to the reader.

Notwithstanding the several vascular systems of the liver are manifestly distinct; we know by injections, they communicate with each other; and although they are so intricately disposed as to render its functions somewhat obscure; it is obvious that the bile is prepared and strained off from the blood, by the extreme branches of the *vena portarum*: thence it is taken up by a second order of

vessels named *pori biliarii*, which, by uniting and reuniting, from one duct discharging a part of it immediately into the intestinal canal ; the rest being conveyed into the gall bladder, where, by stagnation, it becomes more thick, bitter, and exalted in quality, than that flowing from the liver.

The gall bladder, in shape and size, resembles a small pear, and is placed on the right side, in the concave part of the great lobe of the liver : from it proceeds the cystic duct, which joins the hepatic duct or trunk of the *pori biliarii* coming from the liver : by the union of those two small canals, the *ductus choledochus* is formed, which discharges bile into the intestines, as already mentioned.

The hepatic bile proceeding immediately from the liver, flows constantly into that part of the intestinal canal called *duodenum* ; but the cystic bile from the gall bladder, is only discharged at certain times, by the irritation, or pressure of a full stomach, when the bladder is most turgid with bile.

The blood brought by the *vena portarum* from the whole abdominal viscera, having thus parted with its bile, is taken up by a third order of vessels, which by uniting constitute one large trunk called *vena cava* carrying it directly to the heart, the main instrument of life and circulation.

The *hepatic artery* is another vessel supplying the liver with blood, which seems intended for nourishment only ; its branches accompany those of the *vena portarum*, with which, and its own corresponding vein, it also communicates, in common with the other vascular systems of the liver.

From this distribution of the vena portarum through the substance of the liver above, and the abdominal viscera below, it may more easily be comprehended why those parts sympathize with each other, and are alternately or mutually affected by every cause which obstructs the course of their blood, and hinders it from being freely transmitted through their several parts. Should the liver, for instance, be affected with inflammation, abscess, or schirrus; the intestines, mesentery, and abdominal contents which supply it with blood, must become obstructed, overcharged, and distended; hence a sense of weight, oppression, and indolent pain through the whole abdominal region. To this cause also the hæmorrhoids or piles are frequently owing, varicose swellings in the veins of the legs; hypochondriac affections; and a bloated habit of body, ending in jaundice, dropsy, or some other chronic disease.

The most obvious and common causes of such obstruction, are external violence, and an unfavourable, bending position of the patient's body; whence the several *vital parts* remain in a state of long, and violent compression, by which the course of their blood is not only obstructed, but their vital functions are impaired, or destroyed; the pernicious consequences of which I have already pointed out, in speaking of diseases peculiar to certain occupations.

Want of sufficient exercise, and full diet, may likewise be assigned as manifest causes of plenitude and obstruction; especially the immoderate use of such high seasoned, tenaceous aliment as cannot easily be subdued by the stomach, or assimilating

powers of the body ; and to this cause of visceral congestion, as well as the production of gall stones, none are more subject than those of a studious disposition who lead an indolent life.

From the slow and sluggish motion of the blood through the liver, and its being endowed with less sensibility than is common to other parts of the body, especially in its interior, pulpy substance ; it is seldom subject to acute inflammation, except from powerful causes ; but for the same reason, it is often affected by chronic inflammation, and obstruction, ending in *schirrus*.

Diseases of the liver are most frequent in the autumnal season, or near the vernal, and autumnal equinox when the weather is changeable, and excessive heat is succeeded by severe cold. The blood and juices are then rarefied and expanded, and as suddenly chilled and condensed ; by which, together with that violent contraction of the solids which must then necessarily happen, they will be locked up, and impacted in their vessels, so as frequently to occasion a *schirrus* or preternatural induration and enlargement of the liver, or other glands.

This observation being verified by repeated experience, should be a caution to those who inadvertently expose themselves to falling dews, or night-air at those seasons ; or who imprudently take large draughts of cold fluids, when the body is violently heated by exercise, or other causes.

In this climate, the liver is more frequently affected with diseases of the slow, chronic kind, tending to produce a *schirrus* which is often the consequence

of hard drinking, or an intemperate sedentary life ; especially in those of a bilious habit of body, and hypochondriacal temperament.

A schirrus of the liver, like a treacherous adversary, makes its approaches by such slow, insensible degrees, and with so little pain, that the patient often becomes incurable, before he is aware of danger ; but a pale, livid aspect, and bloated habit, indicate a visible decline in his health ; and as the various functions of the whole abdominal viscera chiefly depend upon the sound state of this organ ; and since a confirmed schirrus, instead of diminishing, has been found slowly to increase ; it can be no wonder, that it generally proves incurable, and terminates fatally in dropsy or consumption.

A schirrus of the liver is more certainly indicated by a sallow, olive coloured complexion, than a yellow colour of the skin, which rather denotes an obstruction of bile, or the presence of gall stones.

In the inferior concave part of the liver it is difficult to be perceived ; but in its convex part, on the right side, which is usually the seat of this disease ; the hardness and enlargement, in thin subjects, is manifest to the touch : in this case, the patient is generally affected with *nausea and sickness after eating*, when the stomach is replenished with food, from the enlargement and pressure of the diseased liver, by which its natural function is disturbed ; and on the contrary, the fulness of the stomach will occasion pain and oppression about the region of the liver, attended with difficulty of breathing and a cough.

Various and almost innumerable have been the medicines recommended for removing *obstructions of the viscera* ; many of them possessed of efficacy ; and others so inert and void of power, that it might be said with truth, their greatest excellence consisted in not being able to do harm.

As it is matter of real consequence to ascertain the effects of those medicines which, upon trial, have been found most efficacious ; I shall mention such only ; and endeavour to point out, under what circumstances, benefit may be expected from them ; and upon what principles they are supposed to act.

Although mercury is a medicine of acknowledged efficacy in local affections of the liver, when seasonably administered in the beginning ; there are cases where its use would be exceptionable and improper : for instance, when the patient is of a weakly consumptive habit, and labours under hectic fever proceeding from a decay of the vital parts, it has been found prejudicial ; also in tedious affections of the viscera occasioned by a long course of intemperance, or hard drinking, tending to produce a confirmed schirrus.

In such chronic maladies, alteratives of a more gentle kind, as those of vegetables which act by their saponaceous, attenuating quality, are more safe and beneficial : of this sort are taraxacum, succory, and such as abound with a milky juice, which, taken in fresh runnet whey, during spring and autumn, are of greater efficacy than is generally imagined ; especially when duly and long continued, as all alterative

medicines ought, the more effectually to produce a gradual and lasting change in the constitution.

Milk is chiefly composed of three parts, namely, of cream or animal oil; curd or cheesy part; and whey or watery part; the last of which may be considered as a fine animal fluid or serum separated from the grosser parts of milk, which easily mixes with the blood; and when rendered more aperient by the addition of lixivial salt, or impregnated with the attenuating juices of vegetables, is a safe, and efficacious deobstruent, in obstinate obstructions of the liver and viscera.

Whey contains a sweet, saccharine part, and also an oily, saponaceous mucilage, from which it also possesses solutive, and attenuating qualities; and being friendly to the stomach and bowels, is proper to keep the body laxative, when they are in a tender, excoriated state; and where harsh purgatives would be hurtful, or even dangerous. Whey will also be found extremely beneficial when the bladder, or urinary passages have been irritated and fretted by gravel or sabulous matter.

Albumen ovi, or white of fresh raw eggs, is also a saponaceous animal fluid of exquisite fineness, and similar to the lymphatic part of the blood; diluted with distilled water, or fresh whey, when liberally taken, it will generally cure the jaundice; and in weakly constitutions, has frequently succeeded in that disease when other means failed.

It has been observed, that when warm fluids had been injected into the intestines, or even into the abdominal cavity of living animals, not a drop could

be found after death ; the whole being absorbed by the lymphatic vessels. From this known fact, and by attention to the structure of the liver, already described, this practical inference will follow, viz. that in all diseases of that organ, or those of the abdominal viscera in general ; such medicinal substances as are appropriated to their cure, may be more immediately conveyed to the affected parts, by *clysters*, than any other means ; for, being absorbed by the lacteals, and mesenteric veins, they are carried directly through the liver by the vena porta, and with this peculiar advantage, that, not being altered by undergoing the digestive force of the stomach, like medicines taken by the mouth, they will be transmitted to the seat of the disease, possessed of their whole medicinal properties.

Saponaceous clysters, therefore, or lixiviated whey (vide appendix), being injected into the intestinal canal, will there be absorbed, and immediately conveyed to the liver with the reflux blood which, as repeatedly observed, it receives from the abdominal contents. In this manner the deobstruent power of medicines will not only act with their full force upon the obstructed glands of the viscera, but by mixing with the blood and juices, will render them more fluid and fit to pass through their finest strainers.

The use of clysters in this country, is not so common as in many parts of Europe, where they are frequently administered for refreshing the body, as well as in the cure of diseases : they have indeed, been mentioned among other remedies, in a general way ; but their extraordinary efficacy has not been

particularly insisted upon, nor have reasons been assigned drawn from the structure, and functions of the affected parts, why, particularly, in diseases of the viscera, they will be found more powerful than other remedies.

Absorption of fluids by the lymphatic vessels of the skin, being also found very considerable, and a fact no longer to be doubted, may suggest the use of a *warm bath*, as another powerful remedy in schirrous affections of the liver and glandular obstructions of the viscera.

*Hippocrates taught that an inhalation of vapour

* Hippocrates, the father of physic and prince of physicians, was born in the island of Cos in the 80th Olympiad, and flourished at the time of the Peloponnesian war. He was the first man we know of, who laid down precepts concerning physic; and, if we may believe the author of his life, who goes under the name of Soranus, drew his original from Hercules and Æsculapius. He was first a pupil of his own father Heraclides, then of Herodicus, then of Gorgias of Leontinum, the orator, and, according to some of Democritus of Abdera. After being instructed in physic, and all the liberal arts, and losing his parents, he left his own country; but what were his motives, authors are not agreed. Some say, that he was obliged to fly for burning the library in Cnidus, of which he had been appointed the keeper. This Pliny relates from Varro, and assigns also the motive which induced him to commit so atrocious an act; viz. that "having transcribed from ancient books, every thing relating to his own art, he might, by destroying them afterwards, pass the better for an original himself." Soranus in the mean time tells us, that he was divinely admonished in a dream, to go and settle in Thessaly; as Galen, we know, pretended since to be put upon the study of physic by a dream which his father had. Be that as it may, it is certain that he left Cos, and practised physic all over Greece; where he was so much admired for his skill, as to be sent for publicly, with Euryphon, a man superior to him in years, to Perdiccas king of Macedonia, who was then thought to be consumptive. But Hippocrates, as soon as he arrived, pronounced the disorder to be entirely mental, as it really was found to be. For upon the death of his father Alexander, Perdiccas fell in love with Philas, his father's mistress; and this, Hippocrates

and fluid took place on the surface of the body, as well as an exhalation of similar matter. He asserted the same thing of all the internal surfaces and cavities: we find this doctrine summed up in the following words.

discerning, by the great change her presence always wrought upon him, soon effected a cure, which one would think, might easily have been effected without the help of such a physician, or even of any physician at all. He was also entreated by the people of Abdera, to come and cure Democritus of a supposed madness. As their epistle to him on this occasion is curious, and gives a just and full idea of his very extensive fame, I shall here present it to the reader in a translation.

“ Our city, Hippocrates, is in very great danger, together with that
 “ person, who, we hoped, would ever have been a great ornament and
 “ support to it. But now, O ye gods! it is much to be feared, that we
 “ shall only be capable of envying others, since he, through extraordi-
 “ nary study and learning, by which he gained it, is fallen into sickness ;
 “ so that it is much to be feared, that if Democritus become mad, our
 “ city will become desolate. For he is got to such a pitch, that he en-
 “ tirely forgets himself, watches day and night, laughs at all things
 “ little and great, esteeming them as nothing, and spends his whole life
 “ in this frantic manner. One marries a wife ; another trades ; another
 “ pleads ; another performs the office of a magistrate, goeth on an em-
 “ bassy, is chosen officer by the people, is put down, falls sick, is wound-
 “ ed, dies. He laughs at all these, observing some to look discontented,
 “ others pleased : moreover, he enquires what is done in the infernal
 “ places, and writes of them : he affirms the air to be full of images,
 “ and says, he understands the language of birds. Rising in the night,
 “ he often sings to himself ; and says, that he sometimes travels to the
 “ infinity of things, and that there are innumerable Democritus's like
 “ him : thus, together with his mind, he destroyeth his body. These
 “ are the things which we fear, Hippocrates: these are the things which
 “ trouble us. Come therefore quickly, and preserve us by your advice,
 “ and despise us not, for we are not inconsiderable, and if you restore
 “ him, you shall not fail either of money or fame. Though you prefer
 “ learning before wealth, yet accept of the latter, which shall be offered
 “ to you in great abundance. If our city were all gold we would give
 “ it to restore Democritus to health : we think our laws are sick, Hip-
 “ pocrates: come then, best of men, and cure a most excellent person.
 “ Thou wilt not come as a physician, but as a guardian of all Ionia, to

“*Σαρκες ὅλκοι καὶ ἐκ κοιλίης καὶ ἐξωθεν δῆλον ἢ αἰσθησις ὡς ἔκπυον καὶ εἰσπυον ὅλον τὸ σῶμα.*”

“The soft parts of the body attract matter to themselves both from within, and from without ; a proof, that the whole body exhales and inhales.”

“encompass us with a sacred wall. Thou wilt not cure a man, but a city, a languishing senate, and prevent its dissolution : thus becoming our lawgiver, judge, magistrate, and preserver. To this purpose we expect thee, Hippocrates : all these, if you come, you will be to us. It is not a single obscure city, but all Greece, which beseecheth thee to preserve the body of wisdom. Imagine, that learning herself comes on this embassy to thee, begging, that thou wilt free her from this danger. Wisdom is certainly nearly allied to every one, but especially to us, who dwell so near her. Know for certain, that the next age will own itself much obliged to thee, if thou desert not Democritus, for the truth which he is capable of communicating to all. Thou art allied to Æsculapius by thy family, and by thy art : he is descended from the brother of Hercules, from whom came Abderas, whose name, as you have heard, our city bears : wherefore even to him will the cure of Democritus be acceptable. Since therefore, Hippocrates, you see a most excellent person falling into madness, and a whole people into distress, hasten, we beseech you, to us. It is strange, that the exuberance of good should become a disease ; that Democritus, by how much he excelled others in acuteness of wisdom, should so much the sooner fall into madness, while the ordinary unlearned people of Abdera enjoy their wits as formerly ; and that even they, who before were esteemed foolish, should now be most capable of discerning the indisposition of the wisest person. Come therefore, and bring along with you Æsculapius, and Epione the daughter of Hercules, and her children, who went in the expedition against Troy : bring with you receipts and remedies against sickness ; as the earth plentifully affords fruits, roots, herbs, and flowers to cure madness, she can never do it more happily than now, for the recovery of Democritus. Farewell.”

Hippocrates, after writing an answer to this letter from the senate of Abdera, in which he commended their love of wisdom and wise men, went : but upon his arrival, instead of finding Democritus mad, found all his fellow-citizens so, and him the only man in his senses. He heard many lectures, and learned much philosophy from him ; which has made Celsus and others imagine, that Hippocrates was the disciple of Democritus, though it is probable they never saw each other till this inter-

The Arabian physicians appear also to have been acquainted with this property of absorbing in the human body; for we find them frequently applying medicines to the surface of the skin which were to produce their effects as expectorants on the lungs, as emetics on the stomach, as purgatives on the intestines, or diuretics on the kidneys.

It has been experimentally proved, that the whole surface of a human body, in the space of fifteen minutes may absorb near seven pounds of water: a warm bath, therefore, will greatly assist in the cure

view, which was occasioned by the Abderites. Hippocrates had also public invitations to other countries. Thus when a plague invaded the Illyrians and the Pæonians, the kings of those countries begged of him to come to their relief: he did not go, but learning from the messengers the course of the winds there, he concluded however that the distemper would come to Athens; and, foretelling what would happen, applied himself to take care of the city and the students. He was indeed such a lover of Greece, that when his fame had reached as far as Persia, and upon that account Artaxerxes had intreated him, by his governor of the Hellespont, to come to him upon an offer of great rewards, he refused to leave it. He also delivered his own country from a war with the Athenians, that was just ready to break out, by prevailing with the Thesalians to come to their assistance: for which he received very great honours from the Coans. The Athenians also conferred great honours upon him: they admitted him next to Hercules in the Eleusinian ceremonies; gave him the freedom of the city; and voted a public maintenance for him and his family in the Prytaneum, or council house at Athens, where none were maintained at the public charge, but such as had done signal service to the state. He died among the Larissæans about the time that Democritus is said to have died; some say, in his 90th year, others in his 85th, others in his 104th, and others in his 109th. He was buried between Gyrtion and Larissa, where his monument is shewn even to this day. His countrymen the Coans kept his birth-day as a festival; and indeed no wonder that he should have divine honours paid him, since, on account of his wonderful skill and foresight in this art, he passed with the Grecians for a god.

of such diseases: warm water when received into the system, by its relaxing power, will soften the obstructed vessels, and tend to dissolve their glutinous, impacted fluids; and those good effects may the rather be expected, considering its action on the skin as a universal fomentation, and the extraordinary sympathy between the surface of the body, and internal, vital parts, which I have before particularly mentioned.

As the quantity of water imbibed by the absorbents will be proportionable to its lightness, and purity; that which is soft will be most proper for the purpose of a bath; and since most water contains a certain quantity of vitriolic acid, and earthy matter; it will be necessary to add a sufficient portion of soap, or alkaline salt to neutralize the acid, and render the water more pure, by precipitating its calcareous earth; consequently, it will become more penetrating and deterative. A handful of aromatic herbs may be thrown into the bath at the time of use to give it an agreeable odour.

By coughing, sneezing, and other violent efforts of the body, particularly *vomiting*; the blood is driven through the whole vascular system with increased celerity; emetics, therefore, will also be of considerable service, in chronic diseases of the liver; especially in cold, phlegmatic constitutions; but they ought to be directed with great caution, and chiefly in cases where the obstruction is recent, and the vital parts sound; or at least before the liver is become schirrous, and broken down.

Emetics are also less proper in acute diseases of

the liver, attended with pain, general inflammation, and hectic fever; but where the symptoms are of the chronic kind, proceeding from spasm, or simple obstruction, with a defective secretion of bile; they have been found of the greatest service; especially after the use of alterative medicines, and the warm bath, or those attenuants which have already been specified; for, by the action of vomiting, the liver is not only strongly acted upon and compressed by the abdominal muscles, and surrounding parts; but, being contiguous to the stomach, is agitated and shaken by its repeated efforts.

By vomiting, and the agitation which the whole of the abdominal contents thereby undergo; the motion of the blood through the viscera will be greatly increased; consequently, it will be more freely transmitted through the several, intricate vascular systems of the liver. Hence, a sea voyage and its attendant *sickness*, by acting more permanently, and with greater power, as well as by the copious evacuation of bile which it generally occasions, may still have additional efficacy.

: An opiate, after the operation of the emetic, will be necessary; particularly, in cases attended with pain, or in those of irritable habits: it usually promotes perspiration; consequently, by relaxing the solids, and abating spasmodic constriction of the vessels, it may also assist in removing obstruction.

: Purgatives, seasonably directed, will likewise have their use in cases of *hepatic or bilious obstruction*; for, as the bile stimulates the intestines and naturally promotes their discharge; costiveness will generally

be the attendant of such affections. It will therefore not only be necessary to direct gentle laxatives as substitutes for the deficient bile; but, in particular cases, occasionally to administer a smart purgative pill, with a grain or two of calomel, and of aloes and soap, three grains each, which, by its stimulus, may help to dislodge, and carry off those gross, stagnating humours from which diseases of the viscera so often originate; and such salutary effects may more reasonably be expected, as we constantly find, that in all disorders of the stomach and bowels, whether they are originally, or symptomatically affected; the patient is generally relieved by *spontaneous vomiting or purging*.

Besides, since purgatives operate more immediately upon the alimentary tube which is connected with the affected parts, they will be more likely, by their stimulus, to *dislodge biliary concretions*, and give motion to the stagnating bile; especially, as the common canal, through which the bile passes into the intestine, is formed by the union of the cystic and hepatic ducts proceeding from the liver: this observation is confirmed by experience; for, we know, that by such means, biliary concretions have frequently been voided.

It has been experimentally found that *electricity* accelerates the motion of fluids, and is a remedy of great efficacy, in cases of obstruction, or whenever there is a want of circulating power: a capillary tube which will only transmit water by drops, being electrified, will instantly allow it to pass in a full stream. Its effects on animal, and vegetable bodies

are not less extraordinary ; in the first, it increases the blood's motion, as is evident from its raising the pulse ; and the growth of plants is remarkably promoted by it, as well as animal and vegetable perspiration.


Bile by a property common to all glutinous fluids in a stagnating state, will thicken and concreate by the evaporation of its fluid, and the mutual attraction of its grosser parts ; consequently, gall-stones may thus be simply formed, without any morbid affection of the liver itself, or the parts peculiar to it.

Agreeable to this observation, we find that those who lead an inactive, studious life, where the motion of cystic bile is sluggish, and retarded in its progress into the intestines, are, of all others most subject to such concretions. As a farther confirmation of this reasoning ; gall-stones have generally been found in the gall-bladder itself, where the bile stagnates, and not in its ducts where it circulates ; and because, many who had voided gall-stones, afterwards remained in perfect health ; which clearly shew, that, independent of tenacity, the bile in such cases, may be free from depravity ; and that its *simple concretion only* is sufficient to account for the formation of gall-stones.

This remark, however, should by no means flatter the patient with such perfect security, as to withdraw his attention from every possible method of preventing the disease, which in advanced age, and a bad habit of body, is extremely apt to return ; especially if he has been affected by gout, and gravel, or his constitution is much broken and impaired by intem-

perance, or preceding chronic diseases which hinder him from using sufficient exercise.

To recapitulate; whatever may be the diseases of the viscera, which interrupt or suspend their natural functions; if those vital parts are rather disordered than broken down, and destroyed; the remedies already specified will remove them, and restore the patient to health; namely, the occasional use of alteratives, the mild deobstruent power of *lixivated whey*, soap clysters, and opiates, assisted by *emetics*, electricity, and exercise; the various powers of which and manner of their action on the human body have already been explained.



SECTION VII.

Of Nervous Disorders ; Hysteric Affections ; Low Spirits, Melancholy, and Insanity ; their Treatment and Cure.

The word nervous has been so vaguely and indiscriminately applied, that it is necessary to ascertain the complaints truly such, and to distinguish them from others improperly so called.

Those disorders may be deemed nervous, where, from an original fault, or infirm texture of the nerves, they become disagreeably affected by such slender causes as would not produce the like sensations in others whose nerves were in a natural state.

Instead of regarding this simple distinction, almost every disorder accompanied with weak nerves has improperly been called *nervous* : but in this general and indefinite sense, all diseases may be called so, for the nerves being the only susceptible parts of animal bodies, and every where interwoven with all their solid parts, must suffer in proportion as they are injured by disease, or external violence.

Such complaints being only symptoms or consequences of preceding diseases, cannot with propriety be called nervous, any more than a person may be said to be deeply consumptive after a severe fit of illness which had reduced him to skin and bones.

Before I proceed farther, it will be necessary to

explain in a simple manner, the nature of those bodily powers which constitute the very principles of life.

The human body is sustained and kept alive by three principal powers, which, like the movements of a clock or watch, co-operate, and mutually assist each other : the first is the *brain*, and nervous system proceeding from it, the great source of all sensation ; the second is the heart, with its arteries or blood-vessels ; and the third is the stomach and bowels which prepare aliment for the body's nourishment.

In speaking of digestion it was remarked, that the stomach loses its power when deprived of nervous influence ; and I must here take notice, that the regularity and vigour of the heart's motion chiefly depend on the same cause.

As therefore the brain and nerves, the heart and arteries, with the stomach and bowels, are the principal instruments of all sensation, circulation, nutrition, life, and motion, and the very agents which govern and direct the whole animal machine ; it will necessarily follow, that when any of them become disconcerted, or put out of order, the vital functions of the body must then be unduly performed.

Such is the extraordinary sympathy, and intercourse between those several organs, that like so many little provinces, allied by mutual interest, not one of them can exercise its full power, without the concurrence of the rest ; for, as the heart and stomach cannot act, without the assistance of the brain ; or the stomach digest, without receiving a due quantity of blood from the heart ; so neither can the heart have sufficient force to keep up the circulation, with-

out continued supplies from the stomach ; or even the brain itself exert its influence over those organs, without being duly nourished by both.

But besides those parts, as well as the action of the lungs, there is a more latent principle of life, called *irritability*, which does not depend upon either of the former powers, since it continues to exist in the body, after all sensibility and circulation is lost, and every vital principle, but itself, totally extinguished and destroyed.

By irritability is meant that property of the animal fibre, which, on being pricked, or stimulated, has a power to contract, and shorten, although the animal is dead ; for, the heart, which is the most irritable part, may be excited into motion, even after the head has been cut off ; hence we may conclude that *irritability* is not only independent of *sensibility* and circulation, but even of the soul itself ; being found to exist after the brain, the seat of that *spiritual something*, has been destroyed, or taken away.

As therefore irritability is a property residing in the animal fibre, from the peculiar structure and nature of its parts, and as it is the latest in taking leave of the body ; so with equal reason it may be supposed that 'tis the *first vital principle* which gives commencement to animal life.

Dr. Glisson was the first who used the word *irritability* ; but we are indebted to the celebrated *Baron Haller* for pointing out the essential difference between it and *sensibility*, with which it had so often been confounded.

The inferences arising from this important dis-

covery, so far as they are conducive to explain the nature of *nervous disorders*, or throw additional light on their cure, I shall here lay before the reader with more pleasure, as the subject is both new and instructive.

Experiments shew that the degree of *irritability* is in proportion to the firmness and consistence of that *mucus* or glue of which the whole bodily system is originally made up. Whatever therefore hardens this animal jelly, as cold, exercise, acids, and the like, diminish irritability; and on the contrary, the dissolving power of heat and moisture are found to increase it. Age, which also strengthens the fibres, relieves some diseases more effectually than medicines, as flushing in the face, nervous tremors, hysteric, or epileptic fits, and scrophulous complaints, about the time of maturity.

I have observed that those of lax solids, and delicate habits, are thrown into a flurry of spirits, from the most trifling causes; and that such impressions, made on the female sex, are often followed by pain in the bowels, a diarrhœa, or fever.

The immediate cause of such effects, have been attributed to an inordinate motion of the *animal spirits*. What are these animal spirits, or who ever saw them? 'tis very unfair thus to adopt words, without meaning, or only denoting things which probably have no existence.

Such disorders seem to arise from too much *irritability* joined to *excess of nervous feeling*, which generally prevails at the same time, and like the former, proceeds from want of sufficient firmness in

that animal glue or cement which *constitutes the nervous coats*, as well as every part of the body.

Agreeable to this observation, we know that long continued illness, profuse evacuations, or whatever diminishes bodily strength, produce a preternatural degree of *irritability* and *sensibility*, though they are distinct qualities, and identically different from each other.

As old age approaches, the *mucus* or animal glue at last becomes so firm as to lose its former irritability; hence want of motion or paralytic numbness in the body succeeds, and at last death itself.

This circumstance is sufficiently confirmed, by observing how the muscular fibres which were very irritable in infancy, gradually become less so, as they are rendered more compact and tendinous from the effect of age. It also shews why those who have weak *stamina* in youth, grow stronger as they advance in years; likewise why they do not so suddenly become old, as those of stronger habits; and why they are less subject to *acute diseases* arising from a firmer state of the fleshy fibres.

Upon the vast degree of *irritability* with which the skin and bowels are particularly endowed, we are able to account for the surprising success observed of late in restoring drowned people to life, by rubbing the surface of the body with salt, and injecting the smoke of tobacco by way of clyster: from the acrid quality of such applications, and their effect on those irritable parts, the several vital organs are brought into consent, and rekindle the latent sparks of life.

On this principle only, we may comprehend what before seemed mysterious beyond the possibility of finding out, namely, how such applications should act on the body when stiff with cold and void of feeling.

I have already remarked that the *organs of motion*, differ from those of *sensation*, and that the first are susceptible on the mere principle of *irritability*; consequently we may conclude, that when people apparently dead, are restored to life, the applications then used, can only act on the irritable parts, for the nerves, which before were sensible, are now destitute of all feeling.

Having considered the property called irritability, it will next be requisite to speak of *sensibility*; and, the better to comprehend the true nature of *nervous disorders*, also to shew what the nerves are, and whence they proceed, and what is their particular office in the animal system.

Every *nerve* may be considered as a cylindrical chord, made up of two distinct substances, viz. of a medullary part, or *marrow*, and a fine membranous *covering*, both which are derived from the *brain*. By experiments made on the nerves of brute animals, it appears that all their feeling resides in the medullary part; and that the membrane with which they are invested, is void of sensation, only serving as a defence or covering to preserve the delicate substance of the first, from the violence of too strong impressions.

These slender nervous chords, are so distributed through the body, that the point of a needle cannot

be applied to any part of its surface, without wounding some of them. In the skin they are spun out to such exquisite fineness, as to become invisible to the naked eye, and therefore only manifest their existence, by their sensibility.

Although it will hereafter evidently appear, that the *nerves* are the immediate organs of all vital motion and sensation, and the medium by which impressions made on the body, are instantly conveyed to the mind; yet the precise manner by which this mysterious intercourse is carried on, remains a secret in nature, with which, perhaps, we shall never be acquainted.

Those things premised, it will follow, that so long as the medullary part of the nerves, is constitutionally good, and their fine membranous covering sufficiently compact, they will continue in a sound state; but, on the contrary, when the last loses its natural firmness, the marrow, or sensitive part of the nerves being as it were thinly cloathed and exposed will feel too much, impressions made on the body or mind.

Hence, such causes as would not create pain when the nerves were in a natural state, cannot be endured without symptoms of great violence; namely, palpitation of the heart, nervous trembling, and faintings.

This delicacy of texture in the coats of the nerves, is by far the most obvious and general cause of such nervous disorders as arise from simple weakness; which the son derives from the father, and communicates to his offspring, as naturally as his features or complexion.

Nervous disorders may therefore arise from con-

stitutional, or hereditary weakness, or be acquired by whatever impairs the natural strength, as tedious diseases, redundant, or profuse evacuations, intemperance, and irregularity of the passions. An indolent and inactive life, and continual residence in low situations, where the air is warm and moist, will also powerfully dispose the constitution to such maladies.

So intimately connected, are the body and mind, and such their correspondence, that impressions made on one, mutually influence the other with like feelings: thus, by *immoderate grief*, the digestive faculty of the stomach is impaired; and by a blow on the head which injures the brain, the soul is as it were dethroned, and losing its empire over the body, all sense and motion are instantly destroyed.

The mind, or intellect, whilst confined to the body "that muddy vesture of decay" is obliged to stoop to the condition of the nerves, which are liable to alteration, and depravity of feeling, from a thousand accidental, and unavoidable causes. Those, as well as many other circumstances, concur to prove, that the faculties of the mind chiefly depend on the bodily organs with which they co-operate; and where those are changed from their natural state, so are the mental feelings.

How different is the disposition of body and mind when the vessels are empty, or full, viz. after long fasting, or a plentiful meal? In the first, the pulse is weak, and unequal, the complexion pale, the body languid, and the spirits desponding; but, after eating, and the use of wine, the springs of life are

wound up, and the body and mind are restored to their native vigour.

The natural temper and genius of a people, are most evident when they are left to act without restraint. A *masquerade* will exemplify what I mean to suggest.—How great and evident is the change in the votaries of pleasure, before, and after the midnight repast? He who at first with the gravity of a Spaniard, and phlegm of a Dutchman, silently wandered about like a ghost waiting to be spoken to, is now suddenly transformed; the influence of beauty, and subtle spirit of champagne, like the *orient liquor of Comus*, begin to animate the constitution: his spirits expand, his tongue is untied, he becomes nimble as *Mercury*, and more loquacious than a Frenchman.

Was it necessary farther to prove the sympathy between body and mind, and shew, that every alteration of one, produces correspondent feelings in the other; it might be illustrated, and confirmed by sensations peculiar to that change of constitution, at the age of puberty, which influence the sexes in favour of each other, even to infatuation and madness.

All *sympathy* as well as motion, entirely depend on the sensibility of the nerves; but although they communicate motion to other parts, they are not at all irritable, and consequently destitute of motion themselves, a circumstance truly unaccountable.

The consent between the brain and heart, is remarkable; for study or intense thinking, quickens the pulse; and sudden fright will occasion palpi-

tions, or a convulsive struggle of the heart, even sometimes to a mortal suffocation. In both these cases, the first impression is made on the brain, and the heart, like a faithful companion, suffers by sympathy; but whether the nerves act as *tubes*, or *vibrating chords*, or serve as conductors to some subtle fluid similar to that of *electric fire*, we are wholly ignorant: it is therefore not a little absurd in people, to talk of *nervous fluid*, or animal spirits, with as much familiarity and confidence, as if they had seen them put into a bottle.

Nervous influence, like attraction in the *loadstone*, or irritability in the sensitive plant, may be considered as a property resulting from matter, according to the peculiar modification of its parts,—in itself, utterly inexplicable, and of which we can know nothing, but from its effects.

As the blood vessels proceed from the heart, which is the instrument of circulation, so the nerves, as already observed, are derived from the brain, the great source of all sensation. We know by feeling the pulse, that the action of the heart gives motion to the blood; and it is no less evident, that the influence of the brain, governs and directs all perceptions of body and mind. Impressions for example made upon the last by excessive grief, or sudden terror, produce symptoms of great violence, or even death itself. Cold air admitted to the naked nerve of a decayed tooth, will feelingly persuade us, that the body as well as mind may suffer by the mediation of the nerves.

The brain seems therefore to the nerves, what

the heart is to the blood-vessels; for too violent a degree of action in the last, will increase circulation, and produce heat, as may be observed after violent exercise. In like manner, when the power of the brain and nerves is violently impressed on the body or mind, their sensations will be rendered too quick and exquisite, like the motion of a watch, which becomes rapid and irregular, when the main spring acts too strongly upon its subordinate movements.

Impressions made on the mind will often totally subdue those of the body; and on the contrary, such as are made on the body, will remove those of the mind; all which may supply an intelligent observer with useful hints in the cure of such nervous diseases as have been unsuccessfully treated by medicines.

Habitual convulsions for instance, have sometimes been cured by the unexpected explosion of a gun, or the sudden outcry of fire, in the dead of night; the hiccough may be stopped by sudden surprise, and the approach of an *ague fit* has been prevented by the same cause.

As we have seen that different passions, sensations, and appetites, at different periods of life, can only be accounted for from alteration of constitution, which *changes the nervous feeling*, so it will appear less surprising, that even diseases themselves, especially those of the *brain and nerves*, should sometimes be cured by the same cause; in consequence of age, or some immediate accidental impression.

In proportion as the solids of the body are more firm and strong, or lax and weak, the nerves, which are intimately interwoven with all its parts, will par-

ticipate of the general habit, and become more or less endowed with sensibility.

For this reason, weakly women and children, in whom the membranous covering of the nerves, is too soft, thin and delicate, are susceptible of slender impressions, from pain, or sudden fear; so as to produce paleness of the face, palpitation of the heart, convulsions, or other violent symptoms. On the contrary, robust men, and old people, whose nerves in common with other parts, are hardened by the effects of age, become much less subject to those excessive emotions.

Tender bodies, such as the first may be said to be "tremblingly alive all o'er," and like wax, to receive too deep an impression. Women, therefore, compared to men, are much more subject to nervous disorders, both from their natural delicacy of frame, and a more recluse manner of living, which deprives them of the benefits of exercise, and fresh air.

Nervous disorders thus arising from simple weakness, are always attended with a preternatural degree of *feeling* and *irritability*, and can only be cured by such means as give more strength and firmness to the whole bodily system.

The progress of age, which gradually imparts strength to the nervous threads interwoven with every part of the body, will therefore greatly assist in the cure of nervous, and hysterical complaints arising from weakness.

Hence it may reasonably be concluded, that moderate *exercise* in dry pure air; the liberal use of *Peruvian bark*, with *chalybeates*, or preparations of steel,

and also the cold bath, are the principal remedies to be depended upon, in this species of nervous disorders, as they are all known to strengthen the body; and, on the contrary, that bleeding, vomits, strong purgatives, the immoderate use of tea, or a sedentary life, in warm moist air, will be highly pernicious.

The nerves, like other parts of the body, are nourished by blood-vessels, and consequently, are liable to inflammation, which will increase their sensibility, and may occasion pain, delirium, or madness: this circumstance is more fully exemplified, by inflammation of the eye, or ear, which will so increase their nervous feeling, that light, and sound, before, producing their natural effect on those organs, without pain, will now become intolerable.

On the other hand, when the nerves are rendered too firm, and insufficiently supplied with blood, as, in extreme old age, their sensations are deadened, and impaired; the stomach will lose its natural power, and the bowels their expulsive force; hence indigestion, and habitual costiveness; a paralytic numbness of the limbs will follow, the sight and memory begin to fail, and all the passions are in a manner extinguished,

———"last scene of all,

"That ends this strange eventful history,

"Is second childishness, and mere oblivion."

The first of those nervous maladies, being inflammatory, may be relieved by bleeding, gentle evacuations, and spare diet: the last, without the magic power of *Medea*, is in its own nature incurable.

Besides those general causes of nervous disorders

arising from simple weakness, there are others of a more violent or particular kind, proceeding from diseased humours in the blood; for instance, breakings out on the skin, suddenly driven back, and the over hasty closure of issues, or old sores, have been succeeded by nervous symptoms which ceased as soon as those discharges were again restored.

The like disorders have been known to follow *gouty complaints* which suddenly went off without any regular fit; but on the return of the gouty humours to the hands or feet, the symptoms were immediately relieved. This particular class of nervous disorders is frequently attended with very dangerous symptoms, in consequence of injury done to the brain, by such *offending humours*; hence, *hysteric*, and *epileptic fits*, low spirits, and melancholy; which can only be effectually removed, by taking away the original morbid cause.

In such cases, the nerves themselves are not in fault, but suffer in consequence of those latent diseases; which must be cured *according to their own peculiar nature*; for as long as their dregs remain in the blood, and poison that vital source, from which all parts of the body are nourished, and supplied, so long must the nervous system continue weak, and infirm.

I now proceed to the cause and cure of *hysteric affections*, *low spirits*, and *melancholy*.

The hysteric passion has been supposed to arise from some particular morbid cause impressed upon the womb, which by nervous sympathy is quickly transferred, from one part of the body to another,

and wherever it fixes, resembles diseases peculiar to such parts, creating *colic* in the bowels, asthma in the lungs, giddiness in the head, and *suffocation* in the throat.

But although this was the general opinion of the ancients, and which many of the moderns have taken upon trust; no opinion can be more exceptionable, and improperly grounded. I have repeatedly had occasion to observe, that various impressions on the body and mind, will occasion *hysterics*, independent of any affection of the womb itself.

The stomach is more amply supplied with nerves, than the womb, and therefore, more susceptible; hence, in very irritable and delicate habits, it oftener becomes the seat of hysteric, from errors in diet, where the aliment offends in quantity, or quality.

Violent passions of the mind, as anger, or extreme jealousy, will often produce the same effect; and here it may again be remarked, that the impression is made on the nervous system in general, and not on those of the womb in particular.

However, as hysterics have been observed to follow obstructed *menses*, it may be allowed that they sometimes proceed from a local affection of the womb.

Hysterical, and hypochondriac affections are of the same nature, for both proceed from weakness, and too much sensibility of the nervous system. The symptoms are only diversified by the difference of sex: in women therefore, this malady is called *hysteric passion*; in men, *hypochondriac melancholy*.

The excess of sensibility in hysteric women, is incontestibly proved by the effect of *musk*, or other

powerful odours, suddenly producing fits, independent of any other cause; and going into a *bath too hot*, has also been attended with the same consequence.

No disease appears more various and changeable than this; but although 'tis often very alarming, it seldom proves mortal. The manner of its attack and disappearance, is sometimes so sudden, that the patient apparently at the point of death one day, seems almost in perfect health the next. However, when neglected, it is apt to degenerate into obstinate *chronic diseases*, as faintings, low spirits, and melancholy.

Those of hysteric habits have always weak nerves. They are subject to obstructed perspiration, bad digestion, and wind at stomach. The symptoms are very different in different constitutions; generally a strangulation is perceived in the throat, as if a ball was rising up, and therefore called *globus hystericus*, erroneously supposed to proceed from an ascent of the womb. Difficulty of breathing, pale urine, faintings, and profound sleep may also be looked upon, as genuine symptoms of this disease.

Sometimes the head or temples are affected with acute pain, as if a nail was driven into the part; attended with dimness of sight, and involuntary effusion of tears. At other times, the patient is seized with convulsions, or sudden laughter, without apparent cause, and talks inconsistently like one delirious.

The *hysteric fit* generally commences with universal *languor*, and pain in the loins, attended with

sense of coldness and nervous trembling; the heart palpitates; the pulse becomes unequal and obscure; the extremities grow cold; a choking is perceived in the throat; the face is pale, breathing difficult, and the voice is lost. Instances have been known, though rare, where the patient remained for a day or two, as if in a *trance*, or *dead sleep*, without apparent sense or motion.

As the fit goes off, the pulse gradually becomes stronger, and the countenance resumes its native colour. A vast quantity of wind is discharged from the stomach, and at last with deep sighings, and a face bedewed with sweat, as if awaking out of profound sleep, she is restored to speech, sense, and motion, but complains of soreness over her body and limbs, as if she had been bruised.

During the fit, the attendants instead of crowding in upon the patient, ought to be kept at a distance, that the fresh air may have immediate access to her lungs, otherwise, they cannot be blown up; and the heart being overpowered, will now want sufficient force to drive the blood through its vessels, consequently, a *syncope*, or mortal fainting may ensue. All that can be done with propriety, during the fit, is to lay her gently on a bed or couch, to keep her head moderately raised, and to guard her from such injuries as might happen by the violence of struggling.

Before proceeding farther, it is necessary to observe, that the *hysteric passion*, however distinguished by different names, is in many respects a true *nervous affection*, of the more severe, or acute kind;

and that it is to be relieved or cured by the *regimen*, and *medical treatment*, proper in such disorders.

A like delicacy of constitution, and the same general causes, equally dispose women to *hysteric*, and nervous disorders : which perhaps may be the reason, why that ornament of physic and philosophy the celebrated *Boerhaave* has not thought fit to treat of the hysteric passion as a separate disorder.

In plethoric habits, where the fibres are strong, the pulse hard and full, and the symptoms violent, bleeding is proper ; but on the contrary, if the patient is languid, and inclined to faintings, it would be improper, and highly dangerous.

If the head is affected with pain, the feet should be put into warm water, and the temples bathed with vinegar, which may be also snuffed up the nose. The violent palpitation of the heart, and internal flutter, may be relieved by clysters of vinegar and water, or a spoonful of lemon juice taken twice a day, especially in full habits of body, attended with thirst and fever.

Moderate exercise of all kinds, particularly riding on horseback, or swinging, if the patient is weak, have been found sovereign remedies, which may be greatly assisted by the use of *Peruvian bark*, *chalybeates*, and the *cold bath*.

In short, frequent experience, and attentive observation have convinced me, that whoever intends to relieve, or effectually cure, *nervous*, or *hysterical disorders*, must do it by means which uniformly and permanently act on the general habit of body ; and not by directing a new medicine for every new

symptom, which at best, can only produce a temporary relief, but will never produce such a change of constitution, as to end in a lasting cure.

Melancholy is a species of insanity, or delirium without fever, creating in the mind ideas, which either arise from false perception of external objects, or some internal impulse on the brain independent of all outward impressions whatever.

This disease unfortunately renders the patient unfit for the social enjoyments of life. It is either *original*, or acquired, and if of long continuance, degenerates into madness.

To avoid useless distinctions; under the general name of *melancholy* may be comprehended those maladies termed *vapors*, *low spirits*, and *insanity*, being all so many branches from the same root, and only differing in degrees of violence.—

Original, or hereditary melancholy, is inherent in the constitution and intimately connected with the very principles of life.

This particular species of disease may be distinguished, by suddenly shewing itself without any apparent cause, and as it results from some fault in the structure of the brain, or nerves, is absolutely incurable, though it does not seem to shorten the duration of life.

The seeds of this disease, like those of gout, or kings evil, are diffused through the blood, and enter into the very composition of the animal frame; for, although on examination after death, there should be no perceivable fault in its organs, yet, as every
implies a preceding cause, it may rationally

be concluded, that the first stamp of their existence, was diseased, and will therefore, one time or other produce corresponding morbid feelings in the mind.

Acquired, or adventitious melancholy, does not like the former species, arise from a diseased state of the brain or nerves, but from some violence applied in a greater degree, than their tender texture can bear, without impairing their functions, and destroying that natural correspondence which ought to exist, between external objects, and the ideas arising from them.

Among the principal of such causes is, a *translation of diseased humours to those organs*, the effect of poisons, spirituous liquors, or influence of the moon : also the excess of anger, joy, and sorrow ; or the insidious power of love, and jealousy.

Religious doubts which perplex the mind with alternate hopes and fears, a sedentary life, *mercury* taken in excess, or warm damp air, all dispose the constitution to *melancholy*, by weakening the nervous power.

Those are the *general causes* of low spirits, and acquired melancholy, which always operate most powerfully, on people of nice sensations, whose *pleasures and pains* from over delicacy of the nervous system, are too exquisite for sense ; but the precise manner in which they produce their effects ; or why such causes do not always produce similar consequences in such a particular state of the nerves, is utterly unknown.

Those on the contrary of more clumsy organs, who are possessed of little more than *vegetable feeling*,

never experience the misery of nervous disorders; so that if they have less pleasure, the account is balanced by their enduring less pain.

Hence it appears, that from vapours or pleasing melancholy, to the extremes of *lunacy* and *raging madness*, their immediate causes can only be two, namely, the first internal, from a fault of the brain, or nerves; the second external, from *adventitious causes*, so violently applied, as to disturb, or prevent their natural functions.

I have already observed, that the body and mind, receive all their information, by means of the brain and nerves; and that by those, they mutually converse, and sympathize with each other; hence it will follow, that whenever those organs are injured, and, like unfaithful messengers, do not truly execute their office, and represent things as they are; the patient will then be imposed upon by *delusive perception*, and figure to himself things, which have no existence, but in his own distempered brain.

Impressions from the same objects, affect the body differently, at different times, according to the nature and degree of its *nervous power*, thus when it is diminished, the efforts of the body languish, and things attempted to be lifted, seem heavier than before; if a slow fever prevails, they are perceived uncommonly cold to the touch; in a word, whatever presents to the eye, and ear, the taste, or smell, will differently affect those senses, as they more or less recede from their natural state.

Objects thus felt through a *false medium*, will be as imperfectly perceived by the mind, as those re-

flected from a false mirror glass, which assume shapes and magnitude not existing in such bodies.

That *melancholy* and *madness* arise from *perversion of nervous feeling* becomes still more evident, by observing that where the nerves distributed to different senses are injured, their faculties are immediately altered and impaired.

Those who are subject to this lamentable malady, perceive a sinking at stomach, are timorous, and fond of solitude; they are suspicious, and inquisitive, alarmed at mere trifles, and entertain the most inconsistent, and extravagant notions, ever apprehensive that some dreadful calamity is near.

Retirement, and bodily ease, are destructive to the melancholy; for whilst they sit unemployed, they become a prey to their own thoughts. On the contrary, exercise, and severity of diet, are beneficial; for no one can think or study, with the same attention, when impressed with the disagreeable sensation of hunger, or tormented with a raging tooth, as when he is at perfect ease.

Violent agitation of body will always interrupt attention of mind; to deny this, would be as absurd as to assert, that a person could deeply meditate with the same deliberation, when carried swiftly through the air by a head-strong horse, at the peril of his life, as when retired in safety, and reclined at ease, on a bed of down.

Acquired melancholy may generally be cured, by taking away, if possible, the cause which produced it; but if it arises from a *translation of morbid hu-*

mours to the brain, being then *symptomatic*, it can only be remedied by removing the original disease.

Since we find that painful sensations applied to the body or mind, often destroy health, and occasion melancholy; by parity of reasoning it may be concluded, that pleasurable feelings of a contrary nature, will bid fairest to restore it. The chiefest of those are, *cheerful company, poetry, music*, and dramatic entertainments of the comic kind. Frequent exercise in the open fields or flower gardens, chalybeate waters, assisted by that sovereign remedy, the Peruvian bark, and cold bath, will also be found powerfully salutary.

The study of natural history will afford pleasing and rational entertainment for the mind; as well as that of exploring the wonderful structure of minute animal and vegetable bodies, by the assistance of the microscope.

The cure of melancholy should be attempted by travelling far from home, with agreeable company, or if convenient, into foreign countries. Prospects which suddenly open upon the mind with novelty and surprise, are most likely to dispossess it of painful sensations, or counteract their bad effects. By thus shifting the scene, the mind will be presented with a continual change of new objects, which strike more forcibly on the senses, than things familiar to them. The eye will be delighted with all the charms of variety, in new prospects; the impulse of sounds, different from those before, will strike the ear; unusual odours will affect the smell; and the taste itself will also experience a change, by the variety of aliments peculiar to different situations.

From those new impressions, thus made on the senses, which are so many avenues, or *immediate inlets to the brain and nerves*, a succession of new ideas will arise so as insensibly to disengage the mind from objects of its distress.

I have already proved, that peculiar thoughts, and reflections of the mind, are joined with certain conditions of the body, and therefore, that, our manner of living, in a considerable degree, changes our manner of thinking.

Hence, by travelling, the universal benefits of air, exercise, and diet, will at once be most agreeably obtained; all which tend to strengthen the constitution, and to wear out disagreeable impressions of the mind, by introducing others of an opposite nature.

The next sovereign remedy is *music*. *Cicero* asserts its amazing power, and *Plato* supposes that the effect of harmony on the mind, is equal to that of air on the body: so wonderful is the empire of music over the mind, as recorded by the ancients, that it leads the soldier undaunted to the "imminent deadly breach," and alternately stops the rage of conquest by its varied power: it mitigates bodily pain, suspends the malignant force of madness, and despair, and lulls the soul into tranquillity and peace.

Music, and its manner of operating on the body and mind, depends as much upon rational, and demonstrative principles, as that of any medicine in the *materia medica*, although little has hitherto

been said on this subject, except in a vague and chimerical way.

Music produces its salutary effects by creating an agreeable sensation on the nerves of the ear, which communicate with the brain and nervous system : and as the inordinate passions of the mind, all make their first disagreeable impressions on those sensible parts, and occasion low spirits, vapours, and melancholy ; no remedy can be more rationally applied to counteract their malignant power, than that of music, which excites a *contrary sensation*, of the pleasurable kind, and acts immediately upon the same organs.

The effect of music will be different according to the style, and manner of its composition, and should therefore be adapted to the particular state and disposition of the mind. The plaintive tone of soft flutes, induce a pleasing languor ; and like the soothing power of opium, compose it when irritated by passion, or tortured by rage ; whilst the merry pipe and tabor, will exhilarate and raise the moping head of *melancholy*, depressed by *religious despair*, disappointed ambition, or *hopeless love*.

Let us next appeal to the refined feelings of those, most susceptible of the divine power of *harmony*, to prove its sovereign influence over the mind ;—that it is the true oblivious antidote, the *Nepenthes* of the Gods, to heal a wounded spirit,—to exalt the soul above low-thoughted care, and lap it in elysium.

CONCLUSION.

The human body is made up of such frail materials that they must necessarily decay, and often be put out of order. We are not only subject to pain and diseases, but to irregularities of the *passions*, and influence of weather; all which affect the *spirits*, *intellect*, and *memory*, so as to render the same person very different at different times, in thinking, speaking, and acting, as any one who is not *robustly insensible*, must naturally discover from his own feelings.—Considering its admirable structure, the number and exquisite fineness of its movements, that in a healthy state, all its parts must conspire, to perform their proper office, and that the least failure occasions some disease; it appears matter of astonishment, that we are more than the transitory beings of a day.

The body and mind, are so disposed by the author of nature, that they cannot act separately, but are mutually affected *by the sole mediation of the nerves*, by impressions alternately made on the one, or other, so that the several passions can only produce their effects, whether good or bad, by increasing, or diminishing the influence of these sensible organs on the bodily system.

As the *regimen*, or government of the passions is highly essential to health, it therefore properly becomes an object of medical attention.

The human mind is principally actuated by two different passions; the one elevates, or winds up the

spring of the nerves, and as it were lifts it above itself; such are the effects of *hope*, and immoderate *joy*: the other, as *fear*, and *sorrow*, sink it below its natural standard.

Most of the subordinate passions appear to be compounded of those: thus the passion of *love* is made up by a conflict of the whole, as hope and fear, grief, or joy, alternately prevail; and terror is only a species of sudden fear, impressed with the extremest violence.

Those malignant feelings, or *demons of the mind*, for they deserve not the name of passions, *envy*, *hatred*, and *revenge*, require no attention: they ought to carry with them, their own punishment, and scorpion-like, sting themselves to death.

I shall here take a contrasted view of the several dissimilar passions in order to shew their powerful influence on the bodily system.

Hope, or expectation of approaching good, like a sovereign balm, diffuses gladness round the heart, and by acting gratefully on the nerves, increases their power on all the vital parts: it promotes a free circulation of blood, as well as the several secretions depending upon it; assists appetite, and digestion, gives strength and vigour to the limbs, renders the countenance cheerful, and contributes universally to the preservation of health.

Fear, or the dread of future ills, on the contrary, deadens the vital feeling of the nerves, retards the blood's motion, and diminishes perspiration; it impairs appetite, depresses the spirits, and particularly disposes the body to receive infectious diseases.

Joy arises from the idea of present happiness, or of having avoided some impending evil. This passion, though nearly allied to *hope*, and when moderate, like it, contributing to health, has yet been found, when sudden and excessive, to introduce a kind of torpor, or palsy of the nerves; to suspend the heart's motion, and destroy the patient by a fainting or *mortal syncope*.

Sorrow implies some present calamity oppressive to the *mind*: it is attended with universal languor, loss of appetite and sleep; giddiness of the head, effusion of tears with faintings; and by weakening the spring of the nerves, it suspends their natural secretions. The pulse loses its usual strength, and respiration becomes so difficult, that the patient frequently sighs to relieve himself of a load at the breast. Thus like a vulture, it incessantly preys upon the heart, and if not relieved by the effect of time, wears out the body, and brings it to decay.

Terror is a species of extreme and sudden fear, from the apprehension of instant danger. It acts upon the nervous system with the velocity of electric fire, and so increases their influence on the body, as sometimes to give it a degree of strength, and agility, almost incredible; but when this momentary exertion is over, universal languor and faintness succeed.

Anger, or a sense of injury sustained, produces effects somewhat similar to *terror*, but not in so violent a degree. When this passion is attended with revenge, the heart palpitates, the hand trembles, the

eyes flash with rage, and the countenance alternately becomes red and pale.

Nothing however is more false and inconsistent with the philosophy of the passions than the general opinion that *pale*ness always indicates revenge ; for it is as frequently occasioned by fear, and excessive joy, or exquisite sensibility, as from that diabolical feeling.

Anger has been observed to occasion profusion of bile, with sickness, vomitings, and pain in the bowels. In those of plethoric constitutions, it has produced apoplexy, delirium, and madness : but on the contrary, such as were of a cold, phlegmatic temperament, and subject to melancholy, dropsy, or intermittent fevers, have sometimes been remarkably relieved by its effects.

The passion of *love*, of all others, is most difficult to be defined, so various are its affections and invincible is its power, according to age, sex, and temperament ; or as it is attended by hope and fear, grief and joy. Whilst one sits " like patience on a monument smiling at grief," another becomes frantic, and despairing of what alone could make life desirable, is driven to *suicide*, and seeks refuge in the grave !

Love like the infant blossom of the spring, fostered by the genial ray, is nursed by indulgence ; but cold indifference, or neglect, blast the promised fruit, and chill it to death.

Many instances have occurred, where those affected by this bewitching passion, have become *epileptic*,

and *hysterical*, or fell into a *nervous fever*, *consumption*, or *melancholy*.

In *mutual love*, when hope presents her nectar'd cup, 'tis replete with more than the sweets of *Hybla*: but when *despair*, accompanied with his sad, and sickly train of jealousies, doubts, and fears, administers his ebon chalice; beware the taste—'tis nauseous as the dregs of gall, and fraught with adder's poison!

If such are the injuries brought on the constitution by irregularity and excess of the passions, how much should it be the care of rational beings to guard against their insults, and oppose their malignant influence with virtuous and becoming resolution?

Happiness and *misery* are the lights and shades which fill up the outlines in the portrait of human life. Every man naturally endeavours to attain one, and avoid the other, but by very different means, and often disproportioned to that end.

We frequently deceive ourselves in the pursuit and enjoyment of our wishes. Extravagance of hope ends in disappointment, and even a series of pleasurable events, at last lose their power. To give them true relish, and make lasting, the mind must refer to some former, painful sensation.

Thus a person who always possessed health, is scarcely sensible of its value; but when lost, let it again return, and he will bless the means which restored it. None enjoy riches so much as those who have been at great pains to attain them, and have tasted the bitterness of want. He who was always affluent, has no competent idea of former indigence,

to contrast such a state and exalt his present enjoyment.

Were our pleasures too exquisite and lasting, they would wear out the body before its time. Every extreme, therefore, happily corrects itself, and every evil works its own cure.

If the violent passions harrow up the soul, and disturb its union with the body ; a conscience pure, and uncorrupted, the inestimable reward of virtue, will best reconcile them to each other, and cause them to dwell in harmony. That will always speak peace to the mind, whatever the world may say, and shield it from the malignant attacks of slander and abuse.

Whoever is too solicitous about censure, fame, or the possession of temporal enjoyments, will seldom find repose : an ungracious look from his superiors, or unmerited insolence from those below him, will vex and discompose him. If he is ambitious, he must feel the bitterness of disappointment ; if anxious for long life, a coffin or shroud, the apparatus of death, will alarm and appal his senses ; while he who beholds those mortal calamities with a philosophic eye ; who is neither weary of living, nor afraid to die, will find in himself inexpressible calm and repose.

In a word, the *government of the passions* is as essential towards preventing diseases of the mind, as *temperance* contributes to hinder them from attacking the body.

That man ought to be deemed richest, who is happiest ; and he is most likely to become so, who, with a virtuous resignation is prepared for the unavoidable

evils which flesh is heir to; who expostulates with the folly and extravagance of his own desires, and although a hard task, at last convinces himself that what he likes best, is not always best for him; who preserves a decent equality of mind, is not arrogantly elated with the delusive smiles of prosperity, nor servilely cast down by the surly visage of *misfortune*.

The different seasons of spring, summer, and winter, have also a manifest influence on the body and mind. In spring, animal, as well as vegetable bodies experience a kind of resuscitation; the nerves are invigorated, and pleasurable feelings irradiate the body and mind; but when the autumnal leaves begin to fall, they are overshadowed by melancholy gloom and all their delectable sensations are chilled and reversed.

It will not here be requisite to call in the assistance of *physic* or *philosophy*, to prove the effects of different climates, and alterations of weather on human bodies, especially in those who are delicate and infirm. The great difference experienced by our feelings, from sudden changes of the atmosphere, even in the space of a single day, or hour, will more powerfully confirm the reality of such effects than all the reasoning in the world.

Popular diseases, as well as bodily habit, and natural temperament in people of different nations, chiefly depend on particular situations occasioned by the soil, air, and water peculiar to each.

We know that transplantation changes both the shape and quality of some vegetables, and that particular animals lose their native temper when trans-

ported to other countries. The phlegmatic disposition of a *Dutchman*, or half frozen, insensible constitution of a *Laplander* might be thawed, and mellowed down into more pleasurable feelings, by the warm, delightful climate of Italy or south of France.

Influenced and animated by the air, and manner of living prevailing among the natives, he would, like them, delight in mirth, in music, and society; and from the same cause, an Englishman, at Paris, would perhaps be more than equal in vivacity to a Frenchman in London. Men would not therefore pertly presume on the superior excellence of their bodily, or mental faculties, did they only consider how accidentally they came by them.

Instead of accounting for many diseases, on such principles, and applying remedies suitable to their cure; namely, those which may be taken from the regimen of *air*, *diet*, and *exercise*, assisted by *simple medicines*; it has been the custom, to impute diseases to occult qualities, or look at a great distance for their causes; as well as ransack the East and West Indies for expensive medicines, whilst nature has presented us with innumerable vegetables equally salutary, at home, growing in gardens, or negligently trodden under our feet in the open fields, whose virtues are insufficiently attended to, and whose only fault is, their being too cheap, and easily obtained.

In this frail and transient state, the human system is subject to an inelephant atmosphere without, and the violent passions within; it may suffer from intemperance, the advance of age, and prevalence of vicious habits, so as to render it more instable than

the weather-glass, and in a perpetual state of change, from the cradle to the grave.

If intemperance and irregularity of the passions wear out the body and anticipate its decay; the votary to *temperance* will probably arrive at old age, without diseases or pain: although, by fatal necessity, he was born to die; the bond of union between the soul and body will rather be gently loosed, than forcibly torn asunder. When the principles of life are nearly exhausted, as a lamp deprived of oil, the vital flame will languish, and at last, must needs be extinguished.

Well may human life thus surrounded and assailed by a train of unavoidable calamities be compared to a *fleeting shadow* which never continues in one stay: like the unballasted bark in a troubled ocean, it becomes the sport of winds and tides, and without the aid of religion, reason, and philosophy, is in continual danger of being swallowed up and lost!

If such are the various affections of the body and mind, and if our manner of living changes our manner of thinking, and influences our moral conduct; thrice happy they who have been accustomed to *early temperance*, and the due regulation of their passions, as powerful motives to virtue, and the surest means of *preserving health, prolonging life* and tasting its pleasures with the dignity and refinement of rational creatures.

1. The first part of the paper discusses the importance of the study of the history of the United States. It is argued that the study of history is essential for a full understanding of the present and for the development of a sense of national identity. The author points out that the United States is a young nation, and its history is still being written. It is therefore important to study the history of the United States in order to understand the country and its people.

2. The second part of the paper discusses the role of the federal government in the development of the United States. It is argued that the federal government has played a crucial role in the development of the country, and that its role should be continued. The author points out that the federal government has been responsible for the establishment of the Constitution, the creation of the federal courts, and the development of the federal bureaucracy. It is therefore important to study the role of the federal government in order to understand the development of the United States.

3. The third part of the paper discusses the role of the states in the development of the United States. It is argued that the states have played a crucial role in the development of the country, and that their role should be continued. The author points out that the states have been responsible for the establishment of the state constitutions, the creation of the state courts, and the development of the state bureaucracy. It is therefore important to study the role of the states in order to understand the development of the United States.

4. The fourth part of the paper discusses the role of the people in the development of the United States. It is argued that the people have played a crucial role in the development of the country, and that their role should be continued. The author points out that the people have been responsible for the establishment of the federal government, the creation of the federal courts, and the development of the federal bureaucracy. It is therefore important to study the role of the people in order to understand the development of the United States.

5. The fifth part of the paper discusses the role of the future in the development of the United States. It is argued that the future is important for the development of the country, and that it should be studied. The author points out that the future is a time of great change, and it is therefore important to study the future in order to understand the development of the United States.

APPENDIX.

An account of the natural history and qualities of Opium ; with practical Cautions and Observations relative to its use and abuse.

OPIUM.

This juice has not yet been collected in quantity in Europe. Egypt, Persia, and some other provinces of Asia, have hitherto supplied us with this commodity ; in those countries, large quantities of poppies are cultivated for this purpose. The opium prepared about Thebes in Egypt, hence named Thebaic Opium, has been usually esteemed the best ; but this is not now distinguished from that collected in other places. This juice is brought to us in cakes or loaves, covered with leaves, and other vegetable matters, to prevent their sticking together : it is of a solid consistence, yet somewhat soft and tenacious, of a dark reddish brown colour in the mass, and when reduced into powder, yellow ; of a faint disagreeable smell, and a bitterish taste, accompanied with a pungent heat and acrimony.

In the province of Bahar in the East Indies, it is said, the poppy seeds are sown in October or November at about eight inches distance ; and are well

watered 'till the plants are about half a foot high, when a compost of nitrous earth, dung, and ashes, is spread over the areas; and a little before the flowers appear, they are again watered profusely till the capsules are half grown: and then the opium is collected; for when fully ripe, they yield little juice. Two longitudinal incisions, from below upwards, without penetrating the cavity, are made at sun set for three or four successive evenings; and then they are allowed to ripen their seeds. In the morning, the juice is scraped off with an iron scoop, and worked in an earthen pot in the sun's heat till it be of a consistence to be formed into thick cakes of about four pounds weight, which are covered over with the leaves of poppy or tobacco, and dried.

The external and internal effects of opium appear to be various in different constitutions, and in the same at different times. By some, when applied to the tongue, the nose, the eye, or any part deprived of skin, it has been said to stimulate and to induce in the eye in particular a slight degree of redness. But if this effect do take place, it is at the utmost extremely inconsiderable, particularly when compared with the effect of a variety of other articles applied to the same organ: and there can be no doubt, that in a very short time, the sensibility of the part to which it is applied, even when there has not taken place the slightest mark of preceding stimulus or inflammation, is very considerably diminished. Some allege, that when applied to the skin, it allays pain and spasm, procures sleep, and produces all the other salutary, or dangerous effects

which result from its internal use; while others allege, that thus applied, it has little or no effect whatever.

It sometimes allays the pain from a carious tooth, by deadening the sensibility of the part, which is sufficient to prove, that it is occasionally useful as a local remedy.

Opium, when taken into the stomach to such an extent as to have any sensible effect, gives rise to a pleasant serenity of mind, in general proceeding to a certain degree of languor and drowsiness. The action of the sanguiferous system is diminished, the pulse becoming for the most part softer, fuller, and slower than it was before. There often takes place swelling of the subcutaneous veins, and sweating; both probably the consequence of a diminution of resistance at the surface, from a diminution of muscular action; and accordingly, opium diminishes those discharges which depend on muscular action, as is particularly exemplified in its effect of binding the belly. Opium taken into the stomach in a larger dose, gives rise to confusion of head and vertigo. The power of all stimulating causes, as making impressions on the body, is diminished; and even at times, and in situations when a person would naturally be awake, sleep is irresistibly induced. In still larger doses, it acts in the same manner as the narcotic poison, giving rise not only to vertigo, headache, tremors and delirium, but to convulsions also; and these terminating in a state of stupor, from which the person cannot be roused. This stupor is accompanied with slowness of the pulse, and with

stertor in breathing, and the scene is terminated in death, attended with the same appearances as take place in apoplexy.

From these effects of opium in a state of health, it is not wonderful that recourse should have been had to it in disease, as mitigating pain, inducing sleep, allaying inordinate action, and diminishing morbid sensibility. That these effects do result from it, is confirmed by the daily experience of every observer: and as answering one or other of these intentions, most, if not all, of the good consequences derived from it in actual practice, are to be explained. If, therefore, by a sedative medicine, we mean an article capable of allaying, assuaging, mitigating, and composing, no substance can have a better title to the appellation of sedative, than opium.

With regard to the dose, one grain is generally sufficient: maniacal persons, and those who labour under violent spasms, require oftentimes two, three, or more grains; but it is more advisable to repeat the dose at proper intervals, than to enlarge it. By frequent use, much greater quantities may be borne: the Turks, who habituate themselves to opium as a succedaneum to spirituous liquors, are said to take commonly a dram at a time.

A long continued use of opium is productive of great relaxation and debility, sluggishness, heaviness, loss of appetite, dropsies and tremors. On leaving it off, after habitual use, an extreme lowness of the spirits, languor, and anxiety, succeed; which are relieved by having again recourse to opium, and in some measure by spirituous or vinous liquors.

Tincture of opium, commonly called *laudanum*, has the same effect as the opium in substance; with this difference, that it exerts itself sooner in the body, and is less disposed to leave a nausea on the stomach. Twenty five drops of the tincture of opium are reckoned to contain one grain of opium.

The operation of a moderate dose is supposed to last in general about eight hours from the time of taking it.

CINCHONA

PERUVIAN BARK.

The tree which furnishes this bark is described as being in general about fifteen feet high, and six inches thick. It somewhat resembles our cherry-tree, grows promiscuously in forests, particularly in the hilly parts of Quito in Peru, and is spontaneously propagated from its seeds.

The bark has some odour, to most people not unpleasant; its taste is bitter and astrigent, accompanied with a degree of pungency, and leaving a considerable lasting impression on the tongue.

Two species are mentioned, namely, the coloured and the white. The coloured includes the pale, the red, the yellow, and the knotty; their barks being coloured, having the cinchona taste and smell, and the trees having very smooth leaves, and purplish flowers. The white includes four varieties,

their barks being of a whitish colour, with very little taste or smell, the trees having broad hairy leaves, very fragrant red flowers, with hairs on the inside.

The pale and the red are chiefly in use in Britain. The pale is brought to us in pieces of different sizes, either flat or quilled, and the powder is rather of a lighter colour than that of cinnamon. The red is generally in much larger, thicker, flattish pieces, but sometimes also in the form of quills, and its powder is reddish like that of Armenian bole. The preparations of the Peruvian bark are

1. The powder.
2. The extract.
3. The resin.
4. Spirituous tincture.
5. The decoction.

The best form is that of powder in which the constituent parts are in the most effectual proportion. For covering the taste, different patients require different vehicles, liquorice, aromatics, acids, port wine &c. are frequently employed; and those who dislike the taste of the bark itself, vary in their accounts to which the preference is due; or, it may be given in form of electuary with currant jelly.

According to some, the Peruvians learned the use of the bark by observing certain animals affected with intermittents instinctively led to it; while others say, that a Peruvian having an ague, was cured by happening to drink of a pool which, from some trees having fallen into it, tasted of cinchona: and its use in gangrene is said to have originated from its curing one in an aguish patient. About

the year 1640, the lady of the Spanish viceroy, the *Comitissa del Cinchon*, was cured by the bark, which has therefore been called cortex or pulvis comitissæ, cinchona, chinachina or chinchina, kanakina or kin-kina, quinaquina or qunquina; and from the interest which the Cardinal de Lugo and the Jesuit fathers took in its distribution, it has been called cortex or pulvis cardinalis de lugo, jesuiticus, patrum &c.

On its first introduction into Europe, it was reprobated by many eminent physicians; and at different periods long after, it was considered a dangerous remedy; but its character, in process of time, became very universally established.

Practitioners have differed much with regard to the mode of operation of the Peruvian bark. Some have ascribed its virtues entirely to a stimulant power. But while the strongest, and most permanent stimuli have by no means the same effect with bark in the cure of diseases, the bark itself shows hardly any stimulant power, either from its action on the stomach, or on other sensible parts to which it is applied. From its action on dead animal fibres, there can be no doubt of its being a powerful astringent; and from its good effects in certain cases of disease, there is reason to presume that it is a still more powerful tonic. To this tonic power, some think that its action as an antiseptic is to be entirely attributed; but that, independently of this, it has a very powerful effect in resisting the septic process to which animal substances are naturally subjected, appears beyond all dispute, from its effects in resisting putrefaction, not only in dead

animal solids, but even in animal fluids, when entirely detached from the living body.

But although it be admitted that the Peruvian bark acts powerfully as an astringent, as a tonic, and as an antiseptic; yet these principles will by no means explain all the effects derived from it in the cure of diseases. And accordingly, from no artificial combination in which these powers are combined, or in which they exist even to higher degree, can the good consequences resulting from Peruvian bark be obtained. Many practitioners, therefore, are disposed to view it as a specific. If by a specific, we mean an infallible remedy, it cannot indeed be considered as intitled to that appellation; but, in as far as it is a very powerful remedy, of the operation of which, no satisfactory explanation has yet been given, it may, with great propriety, be denominated a *specific*. But whatever its mode of operation may be, there can be no doubt, that it is daily employed with success, in a great variety of different diseases.

It was first introduced as has already been said, for the cure of intermittent fevers or agues; and in these, when properly exhibited, it rarely fails of success. Practitioners, however, have differed with regard to the best mode of exhibition; some prefer giving it just before the fit, some during the fit, others immediately after it. Some, again, order it in the quantity of an ounce, between the fits; the dose being the more frequent and larger according to the frequency of the fits; and this mode of exhibition, although it may perhaps sometimes lead to the employment of more bark than is necessary I

consider as upon the whole preferable, from being best suited to most stomachs. The requisite quantity is very different, in different cases; and in many vernal intermittents, it seems even hardly necessary.

It often pukes or purges, and sometimes oppresses the stomach. These, or any other effects that may take place, are to be counteracted by remedies particularly appropriated to them. Thus, vomiting is often restrained by exhibiting it in wine; looseness by combining it with opium; and oppression at stomach, by the addition of an aromatic. But unless for obviating particular occurrences, it is more successful when exhibited in its simple state, than with any addition; and there seems to be little ground for believing that its powers are increased by crude sal ammoniac, or any other additions which have frequently been made.

It is now given, from the very commencement of the disease, without previous evacuations, which, with the delay of the bark, or under doses of it, by retarding the cure, often seem to induce abdominal inflammation, schirrus, jaundice, hectic, dropsy &c., symptoms formerly imputed to the premature or intemperate use of the bark, but which are best obviated by its early and liberal use. It is to be continued not only till the paroxysms cease, but till the natural appetite, strength, and complexion return. Its use is then to be gradually left off, and repeated at proper intervals to secure against a relapse; to which, however unaccountable, independently of the recovery of vigour, there often seems to be a peculiar disposition; and especially when the wind blows

from the East. Although, however, most evacuants conjoined with the Peruvian bark in intermittents are rather prejudicial than otherwise, yet it is of advantage, previous to its use, to empty the alimentary canal, particularly the stomach; and on this account, good effects are often obtained from pre-mising an emetic.

It is a medicine which seems not only suited to both formed and latent intermittents, but to that state of fibre on which all rigidly periodical diseases seem to depend; as periodical pain, inflammation, spasm &c.

In confluent small pox, the Peruvian bark promotes languid eruption, and suppuration; diminishes the fever through the whole course of it; and prevents or corrects, putrescence and gangrene.

In gangrenous sore throats it is much used; as it is externally, and internally, in every species of gangrene.

It is used for obviating the disposition to nervous, and convulsive diseases.

In dropsy, not depending on any particular local affection, it is often alternated, or conjoined, with diuretics, or other evacuants; and, by its early exhibition, after the water is once drawn off, a fresh accumulation is prevented, and a radical cure obtained.

Weights.

Two kinds of weights are used in England, by one of which, gold and silver, and, by the other, almost all other kinds of merchandize are valued; apothecaries employ the former, which is also called *troy weight*; and divide the pound in the following manner, viz.

The pound, lb.	}	contains	{	Twelve ounces	℥
The ounce				Eight drams	ʒ
The dram				Three scruples	ʒ
The scruple				Twenty grains	gr.

Measures.

For liquids, we employ measures which are derived from the wine gallon; and, divide it for medical purposes, in the following manner.

The gallon	}	contains	{	Eight pints	℥
The pint				Sixteen ounces	℥
The fluid ounce				Eight drams	ʒ
The fluidram				Sixty minims	℥

Note.—I have added the signs by which we denote the several weights and measures.

An Explanation of Terms.

Alterative (*alterans*; from *altero*, to change). Medicines which gradually re-establish health without producing any sensible evacuation.

Antiphlogistic (*antiphlogisticum*; from *αντι*, against, and *φλεγω*, to burn). Medicines or diet which oppose inflammation.

Antiseptic (*antisepticum*; from *αντι*, against, and *σηπω*, to putrefy). Medicines which prevent and stop the progress of putrefaction.

Antispasmodic (*antispasmodicum*; from *αντι*, against, and *σπασμος*, a spasm). Medicines which allay spasmodic affections.

Aperient (*aperiens*; from *aperio*, to open). Medicines which gently open the bowels.

Carminative (*carminativum*; from *carmen*, a verse or charm, because practitioners in ancient times ascribed their operation to a charm or enchantment). A term given to those medicines which allay pain and dispel flatulency.

Cathartic (*cartharticum*; from *καθαίρω*, to purge). Medicines which increase the number of alvine evacuations.

Diaphoretics (*diaphoreticum*; from *διαφορεω*, to carry through). Medicines which promote perspiration.

Emetic (*emetikum*; from *εμεω*, to vomit). Medicines which excite vomiting.

Narcotic (*narcoticum*; from *ναρκωω*, to stupify). Medicines which ease pain and procure sleep.

Posological Table or Medicine Chest directory.

The quantities are meant for adults ; for children they require various modifications, and are not merely regulated by age. I have, however, added a table of the proportional doses suited to the different periods of life. Either of the two quantities given, or any intermediate one, may be used as a dose.

Alteratives.	{	Mercurial, or blue pill, from five, to ten grains ;				
		Decoction of sarsaparilla, from four, to eight ounces ;				
		—— compound of do.	do.	do.	do.	do.
		—— of taraxacum	do.	do.	do.	do.
Antiseptics.	{	Peruvian bark, from half a dram, to one dram ;				
		Diluted vitriolic acid, from forty, to sixty drops ;				
		—— nitric	do.	do.	do.	do.
Refrigerants.	{	Nitre, from fifteen grains, to a scruple ;				
		Cream of tartar, from one dram, to half an ounce ;				
		Epsom salts, from one dram, to one ounce ;				
		Rochelle salts, from one dram, to one ounce.				
Antispasmodics.	{	Æther, from half a dram, to one dram ;				
		Opium, from half a grain, to two grains ;				
		Laudanum, from fifteen, to twenty-five drops ;				
		Camphor, from five, to ten grains.				
Aperients.	{	Lenitive electuary, from one dram, to half an ounce ;				
		Cassia pulp, from half an ounce, to two ounces ;				
		Tamarind do.	do.	do.	do.	do.
		Soluble tartar, from one dram, to three drams.				

Carminatives. { Essential oil of peppermint, from five, to ten drops;
 { ————— of lavender, from ten, to twenty drops;
 { ————— of mint, do. do. do.
 { ————— of cinnamon, from three, to six drops.

Cathartics. { Jalap powder, from twenty, to thirty grains;
 { Scammony, from five, to ten grains;
 { Aloes, do. do. do.
 { Gamboge, from two, to four grains;
 { Calomel, from one, to three grains.

Diaphoretics. { Antimonial powder, from three, to six grains;
 { ————— wine, from ten, to twenty drops;
 { Compound powder of Ipecacuanha, from five, to
 { ten grains;
 { Mindererus's spirit, from half an ounce, to one
 { ounce.

Emetics. { Ipecacuanha wine, one ounce;
 { Antimonial wine, from one dram, to two drams.

Narcotics. { Opium, from one grain, to two grains;
 { Laudanum, from thirty, to forty drops.



The following table, is intended to shew the doses of Medicines proper for persons of different ages : thus, supposing one dram of any medicine a sufficient dose for an *adult*, that is, for one of twenty-one years of age, then, other ages will require as follows.

COMMON DOSE			
Ages.	$\mathfrak{z}\text{i}$	Proportionate doses.	
	<i>i. e. one dram.</i>		
Weeks	7	$\frac{1}{12}$	gr. 4
Months	7	$\frac{1}{12}$	gr. 5
	14	$\frac{1}{6}$	gr. 8
	28	$\frac{1}{3}$	gr. 12
Years	$3\frac{1}{2}$	$\frac{1}{4}$	gr. 15
	5	$\frac{1}{3}$	$\mathfrak{g}\text{i}$
	7	$\frac{1}{2}$	$\mathfrak{z}\text{ss}$
	14	$\frac{2}{3}$	$\mathfrak{g}\text{ii}$
	21	—	$\mathfrak{z}\text{i}$
	66	$\frac{1}{12}$	gr. 55
	77	$\frac{5}{6}$	gr. 50
	100	$\frac{2}{3}$	gr. 48

Note.—The characters \mathfrak{f} mean the *half* of any thing, as $\mathfrak{z}\mathfrak{f}$ half a dram.

SELECT PRESCRIPTIONS.

Aperients.*Mild Aperient Pill.*

Take of Extract of Spike Aloe, two drams;
Saffron,
Myrrh, of each, one dram ;
Syrup, as much as is sufficient.

Powder the aloe, and Myrrh, separately ; then, beat them all together, until they form an uniform mass.

In cases of habitual costiveness, two, or three pills, each containing four grains of the above, may be taken at bed-time, occasionally : these pills are of long standing in medicine, and are clearly described by *Rhazes*, the Arabian, who ascribed the original form to *Rufus*, after whom they were first named.

or,

Aperient Wine,

Formerly called the *Sacred Elixir*.

Take of Socotorine aloes, half an ounce ;
Cardamom seeds, (bruised),
Ginger, of each, one dram ;
Spanish white wine, one pint.

Digest for fourteen days, stirring now and then ; and afterwards strain.

This medicine has long been in great esteem, not only as an aperient, but likewise as a stimulant.

The aloetic wine is known, from long experience, to be a medicine of excellent service in languid, phlegmatic habits ; not only for cleansing the primæ viæ or first passages, but, likewise for stimulating the solids, warming the habit, and promoting or exciting the uterine, and other natural evacuations. The dose, as a purgative, is, from half an ounce, to one ounce, or more. It may be introduced into the habit, so as to be productive of excellent effects, as an *alterative*, by giving it in small doses, at proper intervals : thus managed, it does not for a considerable time operate remarkably upon the bowels ; but, at length proves purgative ; and, occasions a lax habit of body, of much longer continuance than that produced by any other medicine.

or,

Stomachic Aperient Tincture.

Take of Turkey rhubarb, sliced, two ounces ;

Cardamom seeds, half an ounce ;

Rectified spirit of wine,

Water, of each, half a pint.

Digest for fourteen days, and strain.

In weakness of the stomach, indigestion, laxity of the intestines, diarrhœa, colic, and other similar complaints, this medicine is frequently of great service. From one, to three table spoonfuls, may be taken as a dose, and occasionally repeated.

Stomachics.

Stomachic Pill.

Take of Turkey rhubarb, powdered, one dram ;
Cayenne pepper, one scruple ;
Ipecacuanha root, powdered, six grains ;
Essential oil of cinnamon, six drops ;
Syrup as much as is sufficient.

Beat them together, until they form an uniform mass ; divide the mass into twenty-four pills. In cases where flatulence prevails, one of the above pills, may be taken three, or, four times a day.

or,

Stomachic Wine.

Take of Gentian root, sliced, half an ounce ;
Peruvian bark, bruised, one ounce ;
Seville orange peel, dried, two drams ;
Canella alba, bruised, one dram ;
Spanish white wine (*i. e.* sherry,) two pints.

Macerate for fourteen days, and strain.

This wine will be found a very useful, and elegant stomachic medicine.

Dose ; from one ounce, to two ounces, twice, or thrice a day.

Chalybeate or Steel Mixture.

Take of Myrrh powdered, a dram ;

Subcarbonate of potash, twenty-five grains ;

Rose water, seven ounces and a half ;

Sulphate of iron, powdered, a scruple ;

Spirit of nutmeg, an ounce ;

Refined sugar, two drams.

Rub together the myrrh, the subcarbonate of potash, and sugar ; and, during the trituration, add gradually ; first the rose water and spirit of nutmegs, and last, the sulphate of iron. Pour the mixture immediately into a glass bottle, and stop it close.

In cases where chalybeate medicine is required, the above is superior to all other preparations. One, or two ounces of the chalybeate mixture, may be taken three times a day, and continued for a month or six weeks.

Tonics and Antiseptics.

Decoction of Peruvian Bark.

Take of Peruvian bark, bruised, an ounce ;

Water, a pint.

Boil for ten minutes, in a vessel slightly covered, and strain the decoction while hot.

Dose, one ounce, to four ounces ; which may be repeated three or four times a day.

T

or,

Antiseptic Mixture.

Take of The decoction of Peruvian bark (as above directed), eight ounces ;

Huxham's tincture of bark, two ounces ;

Diluted Sulphuric acid, two drams ;

Syrup of ginger, two ounces.

Mix. A wine glassful may be taken three, or four times a day.

Antispasmodics.

The Camphorated Mixture of the London Dispensatory.

Take of Camphor, half a dram ;

Rectified spirit, twenty drops ;

Water a pint.

First rub the camphor with the spirit, then with the water, gradually added, and strain the liquor.

A wine glassful may be taken every three hours, or oftener if required.

or,

The Camphorated Mixture with Tincture of Opium.

Take of The camphorated mixture (as above) eight ounces ;

Hoffman's anodyne liquor, two drams ;

Tincture of opium, one dram.

Mix. In urgent cases, this mixture may be taken in the quantity of a tea cup full, every three, or four hours.

Alteratives.

The Mercurial Pill.

Take of Purified mercury, two drams ;
Confection of red roses, three drams ;
Liquorice root, powdered, a dram.

Rub the mercury with the confection, in a stone, or marble mortar, until the globules disappear ; then add the liquorice root, and beat the whole together, until they are thoroughly incorporated.

The mercurial pill, often from its colour called the *blue pill*, is one of the mildest preparations of mercury. The complete extinction of the mercury must be fully accomplished, before the addition of the liquorice powder ; and can be best judged of by rubbing a small portion thinly on paper with the finger, and, examining by a magnifying glass, if any globules of the metal are still visible. Five grains may be taken as an alterative, every night, at bedtime : and, the decoction of sarsaparilla, or the compound decoction of sarsaparilla, may be conjoined.

Decoction of Sarsaparilla.

Take of Sarsaparilla root sliced, four ounces ;
Boiling water, four pints.

Macerate for four hours, in a vessel lightly covered, near the fire; then take out the sarsaparilla and bruise it. After it is bruised, put it again into the liquor, and macerate it, in a similar manner, for two hours more; then boil it down to two pints, and strain.

Dose; from four ounces, to half a pint, three, or four times a day.

or,

Compound Decoction of Sarsaparilla.

Take of Decoction of sarsaparilla, boiling, four pints;

Sassafras root, sliced,

Guaiacum wood shavings,

Liquorice root bruised, of each an ounce;

Mezereon root bark, three drams.

Boil for a quarter of an hour, and strain.

Dose; from four ounces, to half a pint, three or four times a day.

The above is a very excellent antiscrophulous medicine, especially when the disease makes its appearance in the periosteum, and bones of adults.

or,

Lixivated Whey.

Take of Solution of subcarbonate of potash, half a dram;

Runnet whey, one pint;

Virgin honey, one ounce.

Mix. A quarter of a pint may be taken as a deobstruent alterative, three, or four times a day.

and,

Decoction of Taraxacum or Dandelion.

Take of Dandelion root, fresh, and bruised, a pound ;

Water boiling, a gallon.

Macerate for twenty-four hours, boil down to four pints, and strain the liquor through a woollen cloth.

Dose ; from four ounces, to half a pint, four times a day.

Diaphoretics.

Mindererus's Spirit.

Take of Carbonate of ammonia, half an ounce ;
Vinegar, one pint.

Add the acid to the salt, until bubbles of gas shall no longer arise, and mix.

Dose ; from half an ounce, to one ounce.

or,

Diaphoretic Draught.

Take of Mindererus's spirit, half an ounce ;

Camphor, five grains ;

Ipecacuanha wine, half a dram ;

Sweet spirits of nitre, one dram ;

Syrup of white poppies, half an ounce.

Mix. One of the above draughts, may be taken as a diaphoretic, every six, or eight hours.

or,

Compound Powder of Ipecacuanha.

Take of Ipecacuanha root powdered,
Hard opium powdered, of each half a dram;
Sulphate of potash powdered, half an ounce.

Mix. And grind them accurately together, so as to make an uniform powder.

This powder is one of the most certain diaphoretics that we know of; and, as such, was recommended by Dr. Dover, as an effectual remedy in rheumatism. Modern practice confirms its reputation; not only in rheumatism, but also in dropsy, and other diseases, where it is often difficult by other means, to produce a copious sweat.

The dose is from five, to ten or twelve grains; according as the patient's stomach, and strength bear it. It is convenient to avoid much drinking immediately after taking it, otherwise it is very apt to be rejected by vomiting, before any other effects are produced.

Refrigerant.*Common Saline Draught.*

Take of Subcarbonate of potash, one scruple ;

Lemon juice, half an ounce ;

Water, one ounce ;

Syrup of ginger, two drams.

Mix. One of the above draughts may be taken as a refrigerant, every three, or four hours.

Asthmatic Elixir.

Take of Hard purified opium, powdered,

Benzoic Acid, of each, fifteen grains ;

Camphor, ten grains ;

Essential oil of aniseed, half a dram ;

Rectified spirit of wine,

Water, of each, four ounces.

Digest for ten days in a stopper bottle.

This medicine was *originally* called the *asthmatic elixir*, a title which it does not ill deserve. It contributes to allay the tickling which provokes frequent coughing ; and at the same time gives greater liberty of breathing : the opium procures (as it does by itself) a temporary relief from the symptoms ; whilst the other ingredients tend to remove the cause, and prevent their return. It is proper for children in cases of hooping cough, in doses of from five to

thirty drops and upwards, according to age: for adults, from one to three drams.

Οὐδ' ἐπολεῖ ἰητρῶ λογισμὸς φθονήσειον ἂν ἐτέρω :
ἀκιδνὸς γὰρ ἂν φανείη.

HIPPOCRATES.

Medicus ratione utens, nunquam alterum invidiosè calumniabitur: sic enim animi impotentiam prodet.

FINIS.



